

FISHING AT PILLAR POINT

By

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December 2006

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Tucked behind Pillar Point is the only place on the rugged San Mateo County Coast which is good for boat landings, and so Princeton was destined to become a “starting point for deep sea fishing, both for commerce and for pleasure.” (Stanger 1946:176) Once known as “Old Landing,” it was originally a small port used for shipping produce to San Francisco via schooner. By the end of World War II, it had been transformed into a bustling fishing community known as Princeton-by-the-Sea, and was home to three working piers, two canneries and a refrigeration plant for freezing fish. (Scofield 1954:84) But in 1880 when David Starr Jordan conducted the first survey of Pacific Coast fisheries for the U.S. Fish Commission, he found that fishing was not of great importance in San Mateo County, calling the fisheries “very inconsiderable,” the coastside towns all too small to offer local markets, and connections with the outside world “so imperfect that [fishermen] cannot compete with Monterey and Santa Cruz in supplying the San Francisco markets.” Jordan could only find ten men in the area who fished when they could “find nothing else to do,” using hook and line gear and fishing from rocks along the shore. (Goode 1887b:606-607) From those early unassuming beginnings, commercial fishing grew into a valuable industry for the local Princeton community. Its fishermen historically landed many species, including shark, abalone, sardines, crab, salmon, rockfish, halibut, sole, and albacore tuna. (Langdon-Pollock 2004) According to the Department of Fish and Game, during this post-war period of growth California’s commercial fishing fleet, number of commercial fishermen and population all expanded at about the same rate. (1949:197) This paper will review how this transformation took place, as well as take a brief look at some of the community’s fisheries, including California’s sardine, shark liver and abalone fisheries.

It’s well known that the gold rush attracted people to California from all around the world. Not as well known is the fact that many of these early immigrants brought with them the skills necessary for harvesting the riches of the sea, as well as a ready market of eager consumers. (Hutchinson 1969:213) Regardless of this influx of newcomers, coastal San Mateo County remained fairly well isolated; in those early years there were not many fishermen living in the area. San Francisco fishermen (and eventually those from Monterey Bay, as well) fished along the San Mateo coast using many types of fishing gear including paranzella-style nets, seines, gillnets, and setlines [Appendix D]. These fishermen used various types of sail boats, the larger ones being lateen-rigged, while the smaller ones had sprit-sails and were only used for hook-and-line fishing. Due to their size, the smaller boats rarely ventured out far, although during the summer months they would sometimes travel as far south as Half Moon Bay. (Goode 1887b:608; CA Fish & Game 1949:63-64)

The 1870 census lists one fisherman living at Half Moon Bay, Honesto Espinosa, age 48, from Manilla. (Filian & Wolfskill 2006c) The next year, A. Y. Yeek started “a new fishing enterprise,” in which he proposed to furnish the community “with fresh fish every morning.” According to the August 26, 1871, edition of the San Mateo Times-Gazette, Mr. Yeek had been living in Half Moon Bay for almost two years, and was “the proprietor of several wash houses, stores and other undertakings in the neighborhood” (Schellens N.d.a:150) The community was also occasionally supplied with fish through the efforts of Pillar Point’s Azorean whalers; Captain White’s whaling company had offered to supply rockfish, most likely intending to sell fish caught while anchored in the kelp beds awaiting passing whales. (Schellens N.d.a: 158; Scammon 1865a:121) Prior to February of 1872, “with the exception of a short-lived Chinese firm,” local residents were reported to obtain their fresh fish from Pescadero, although Jordan found only one professional fisherman there, who fished “with a gill-net at the mouth of Pescadero Creek.” (Schellens N.d.a:157; Goode 1887b:606) At some point during the 1870s there was at least one other area fisherman, since the April 1879 Times-Gazette reported that fisherman John Peace decided to leave Half Moon Bay, taking his boats and nets to San Mateo, where he would try fishing bayside (Schellens N.d.b:230) Jordan assessed the early San Mateo County fisheries at \$1,250.00, and valued the County fishermen’s three boats and their gear at an additional \$250.00. (Goode 1887b:607) (For statewide comparison purposes, Jordan’s “Statistics of the Fisheries of California in 1880” has been included as Table 1.) Thus while California’s shore whaling declined in the 1880s, another early and important California industry – its fisheries – arose and enabled a small number of Coastsiders to continue to eke a living from the sea. (Hutchinson 1969:212)

As the turn of the century approached, most California fishermen conducted their business in much the same manner as fishermen had for centuries, relying largely on wind and muscle. (McEvoy 1986:125) Many commercial fishermen were limited in their operations to within “fresh fish shipping distances of San Francisco.” (CA Fish & Game 1949:63) Steam power was introduced to California’s larger fishing vessels in 1885 and was quickly accepted in place of sail. By 1895 California’s fishermen had begun installing gasoline engines; four years later 33 out of San

Francisco's 82 fishing boats were gasoline-powered. (Hagerman 1959:9; Scofield 1956:12) Within about another dozen years or so, most of California's small boat fleet had converted from sail to gasoline power, which not only greatly facilitated travel between ports but also allowed fishermen to go where fish were plentiful. (Scofield 1956:12; Bureau of Commercial Fisheries 1928:42) Before long, the gasoline engines were replaced with diesel engines. (Hagerman 1959:9)

With the advent of these small, motorized boats and the increasing numbers of transient fishing vessels, Princeton started to develop into a commercial fishing port. (Hynding 1984:146) Initially Princeton's fishing industry developed slowly and its closely-knit fishing community kept a low profile, for the most part escaping official notice. (Hynding 1984:146) When interviewed in 1941, Princeton resident John Patroni recalled that when he moved to the community near the start of the century there had been a "Chinese fishing camp" located near Denniston's wharf on the northern end of Half Moon Bay, "consisting of a dozen or so rude shacks." (Rose 1941:19) Recordkeeping was sparse; for example, along the entire San Mateo Coastside the only recorded catch for 1904 was 75,000 pounds of abalone, harvested at Pigeon Point by two men and marketed for \$2,500. (Postel 1988:56) California's fisheries expanded in the 1930s, and Pillar Point's fishing industry likewise began to grow. (CA Fish & Game 1949:3, 129)

The entry of the United States into World War II on December 7, 1941, brought regulations which prohibited "enemy" aliens from fishing coastal waters. All Japanese, regardless of whether United States or foreign born, were prohibited from fishing. To be eligible for a commercial license, fishermen from other nations had to become naturalized citizens. Many Italian-born commercial fishermen were not naturalized, and these new regulations meant they could not fish in California's coastal waters. As the war progressed, some of the younger fishermen were drafted. Wartime regulations also severely restricted entry into and out of San Francisco Bay. As a result California's fisheries plunged in 1942. Gradually American crews began to operate fishing boats, but in the early war years security regulations were so restrictive that fishermen were seriously handicapped. At the same time, increased demands for fish resulted in many new entries into commercial fisheries from all walks of life. Some were older, retired fishermen returning to work out of a sense of patriotic duty; some were fishermen's sons, stepping in to fill their father's shoes, many with no previous fishing experience, simply "dazzled by tales of the big money to be made." Many of these newcomers had tired of their routine defense jobs and, taking what money they could scrape together, built or acquired small boats and took to the sea. (CA Fish & Game 1949:201-202)

As World War II progressed, food demands increased and California's fisheries began to expand. A seeming insatiable market for seafood developed, fueled by demands from both government and civilian markets. (CA Fish & Game 1949:64) In 1941 alone, the number of registered commercial fishing boats statewide increased by 350, most of which were in the 25- to 39-foot range, attributed in large part to increased efforts in the shark fishery "and the steady development of the marine sport fishery." (CA Fish & Game 1942:26) Fishermen were unable to meet government demands with fresh fish, and new processing and handling techniques were developed. (CA Fish & Game 1949:64, 66) Trawlers demonstrated their ability to supply large quantities of rockfish by utilizing new balloon-style otter nets [Appendix D, Figure ___] and, to feed its California camps, the Army placed large orders for frozen fillets. (CA Fish & Game 1949:119-120) Prior to this time, a very small amount of fish was filleted; to meet these new demands factory-style fillet processing lines were developed [Figure 1]. Some filleters became so skilled they were able to produce hundreds of pounds daily. Dover sole was an important new species utilized in efforts to meet the demands of the government and civilian markets during World War II, owing to the new fish handling, freezing and packaging techniques. Processors discovered that by quick-freezing Dover sole fillets, their soft tissue hardened into a marketable product; as a result Dover sole ceased being considered a trash fish. (Hagerman 1959:10) The fillet line also allowed for the utilization of many species formerly rejected by markets because of size, since the government contracts were not as particular. The end of the war meant the end of lucrative government contracts; meanwhile, Americans had become so conditioned to eating fish that demand continued. (CA Fish & Game 1949:64, 66, 120) The frozen fillet industry also allowed for the development of fishing ports where in the past there had not necessarily been sufficient populace to dispose of fish locally. (CA Fish & Game 1949:119)

The years following World War II brought many changes, innovations and additions which made operating a small boat easier and fishing in general more successful. (Pacific Marine Conservation Council 1997) The availability of fuel and other fishery-related services at the piers in Princeton served to attract transient fishermen which resulted in increased fish landings [Table 2], enabling the operation of two local fish canneries, Princeton Packers and Romeo Packing Company. (U.S. Commerce Dept. 1943:112; interview with C. Romeo 4/26/2006) About 125 fishing boats

were using the harbor by 1949, ranging in size from 70-foot purse seine vessels to 30-foot crab boats. (Daily Palo Alto Times 1949)

In the late 1940s, fishermen began experimenting with electronic depth finders and other sounding devices. (CA Fish & Game 1949:159, 199; Scofield 1956:42; Pacific Marine Conservation Council 1997) Depth finders were used to avoid areas where gear could be lost on bottom obstructions as well as for navigation, since by watching depths and comparing them to those given on navigational charts, fishermen were able to locate their position even in the fog. (Scofield 1956:42) For this purpose, by the mid-1950s even most of the smaller boats had acquired depth finders. By 1947 radio beacons had been installed in a number of places along the coast and many of the larger vessels had electronic direction finders used in triangulating positions. (Scofield 1948:53; CA Fish & Game 1949:199; Pacific Marine Conservation Council 1997) Radio direction finders were also used by some fishermen to locate other fishermen overheard giving favorable fishing reports. (Scofield 1956:42) By this time, fishermen were well aware of the advantages of using radar to navigate in the fog and at night but the high costs proved prohibitive for most small boat operators. Additionally, early radar equipment was generally so large it was difficult for the fishermen to fit the units into their small vessels. (interview with T. Stickel, 5/12/2006) Likewise, although electronic navigation instruments were coming into use and government loran stations were in place in Northern California, loran instruments were used for navigation by most of the trawl fleet but few of the smaller boats were so equipped. (Scofield 1956:42)

Back in the peacetime days of 1939, radio telephones had been just coming into use in the California seine fleet. With the onset of World War II, for the most part their usage was prohibited, which resulted in direction finders and depth finders being in common use before radio telephones. Eventually, radio telephones did become very popular and were found on most large vessels, including seiners and trawlers. The post-World War II radio telephones were more powerful and could broadcast over a greater distance; before long, the tuna bait fleet also began to use them. (CA Fish & Game 1949:199) By the mid-1950s, even the smallest vessels practically considered radio telephones a necessity, enabling communication both ship-to-ship and ship-to-shore. Fishermen used their radios to send and receive news of fishing conditions as well as to keep in touch, whether for reporting trouble or accidents or merely in dealing with the routine coastal fog. (Scofield 1956:42)

Some of the larger vessels had autopilots in the 1940s, but many owners of smaller boats did not feel their cost justified. For those that did have them, the use of autopilots freed the fishermen to tend to other tasks onboard their vessels while the autopilot kept them on course, in some cases eliminating the need for an extra crew person. (Scofield 1956:42) By the mid-1940s, some fishermen were beginning to use sonar-type equipment to assist with locating and identifying fish, and it was predicted that “this and other modern devices will help take the luck out of fishing.” (CA Fish & Game 1949:199) In the 1950s, commercial fishermen began using hydraulic power with some types of fishing gear. (Pacific Marine Conservation Council 1997)

Many of the same regulations which restricted commercial fishing activities during World War II also impacted pleasure boaters. As a result, many pleasure boats were sold fairly cheaply and wound up being converted into commercial fishing vessels. In addition, at war’s end many former army and navy vessels were purchased and converted to use as fishing boats. At Pillar Point, there were several ex-landing craft which were still being used as salmon troll vessels well into the 1980s. (CA Fish & Game 1949:199; interview with T. Stickel, 5/12/2006)

In 1945, fish and crab landings at Pillar Point were valued at about \$99,370. (Daily Palo Alto Times 1949) In 1951, the species delivered, by “order of volume, were: salmon, crab, abalone, rockfish and lingcod.” For the rest of the 1950’s, fish landings followed roughly the same pattern, with the bulk of Pillar Point fishermen’s income came from landings of salmon and crab. (Scofield 1954:84-85) By the early 1950s, although there was no protective breakwater and no fish-handling facilities in Princeton, there were three piers [Figure 2]. Princeton Packers [Figure 3] was closed “due to the scarcity of sardines,” leaving Romeo’s as the only cannery still in operation. There was a refrigeration plant in Princeton where albacore, salmon and sardines were frozen. Pillar Point’s small fleet of commercial boats was kept anchored in the lee of the point, where they were only slightly safer from storms. [Figure 4]. (Scofield 1954:84; Jenkins 2005:95) The fishermen used dinghies to reach their boats, and kept them tied at the piers while they were ashore. (Jenkins 2005:95) The local fisherman fished for the market during the winter months, but during the summer months it was more profitable for them to take sport fishermen out, as it had been since the earliest times [Figure 5]. (Scofield 1954:84-85)

Eventually, after a long drawn out struggle with government authorities, the 1960s saw the building of a breakwater at Pillar Point Harbor to provide the fishing fleet with a safe harbor of refuge. The 1970s brought boat-launching ramps and new facilities for support of commercial and recreational fisheries. The pier was extended to accommodate the new facilities [Figure 6], and commercial fishing was considered “big business . . . , with boats bringing in salmon, crab, and some 80 species of rockfish.” (Foster 1989:29) Salmon and crab continued to bring in the most dollars for the fishing fleet. In 1977, the State of California began to control entry into commercial fisheries by instituting a limited entry program for commercial abalone diving. This was followed by other California limited entry permit programs as shown on Table 3. (Leet, et al. 2001:73) In 1982, the federal government began restricting access to rockfish traditionally harvested by Pillar Point and other fishermen.

Beginning in the mid-1970s, California’s fishing communities once again experienced an influx of newcomers, this time in the form of refugees from Southeast Asia. Collapsing governments and economies in South Vietnam resulted in a crisis situation, and the United States, as well as France, the United Kingdom, Canada and Australia, agreed to accept refugees for resettlement. Between 1975 and 2002, a total of 759,482 Vietnamese refugees arrived in the United States, 40 percent of whom eventually settled in California. Unlike most immigrants to the United States, the Vietnamese “did not come here the way other migrants came. They came to paradise to realize their personal dreams. We were like trees uprooted and planted in a foreign land.” (Campi 2005) Many of these Vietnamese immigrants “had been fishermen in Vietnam and so moved to fishing communities,” resulting in a noticeable impact. By the late 1980s, there was a fleet of 20 to 40 fishing boats operated by Vietnamese immigrants fishing out of Pillar Point [Figure 7]. (Connelly 1989; Brown 1985) California state law prohibited the operation of a fishing boat by an alien, which hampered the activities of these new arrivals; in 1990, resident aliens were guaranteed their fishing rights by Congress, thus effectively overturning this burdensome state law. (Campi 2005)

When the newly arrived Vietnamese fishermen entered into competition with local fishermen, often hostilities arose. (Campi 2005) Cultural differences created many sources of tensions, and tempers flared over conflicts based on different types of fishing gears and styles of fishing. According to then-Pillar Point Harbormaster Bob McMahon, differences between the fishermen remained simmering beneath the surface. As he explained, “When [the Vietnamese fishermen] first came here three years ago, local buyers would not take their fish.” By 1985 this had changed and “their small makeshift boats” were bringing in tons of fish daily, weather permitting. McMahon went on to state: “We have really tried to make it work here. I made it clear that any violence directed against them would not be tolerated.” (Brown 1985) Unfortunately for the new refugees, because of interactions with diving seabirds, gillnets, their gear of choice, was also the target of another group, the environmental community. Too late in their struggle to maintain California’s gillnet fisheries, the Vietnamese fishermen realized the value of organization and formed the “Vietnamese Gillnetters Association.” By 1990 California’s legislation had passed regulations effectively closing this fishery and the few remaining Vietnamese-American fishermen, as well as the rest of the State’s gillnet fishermen, were forced to change their fishing methods and shift their efforts elsewhere [Figure 8]. Gillnets were an inexpensive, traditional Vietnamese fishing method, and as McMahon explained, the fishermen were unfamiliar with alternative gear types and often could not afford the expenses involved in switching methods. The transition was not easy and, as McMahon commented, “What I see now is a lot of broke Vietnamese fishermen.” (Connelly 1989)

In the 1980s, the Port of Oakland announced its plan to barge mud from their dredging operations to a dump site six miles just north of Pillar Point, off Montara. Local fishermen suggested as an alternative that the Port dump the dredged materials on top of barrels of radioactive waste dumped by the government near the Farallon Islands, but the Port disagreed. The fishermen alerted the media and organized protests. (Smookler 2005:78) Eventually the County of San Mateo sued the Port of Oakland (San Mateo County Superior Court No. 329870), and Pillar Point’s fishermen entered into the lawsuit, challenging the Port’s right to dump potentially toxic spoils on their local fishing grounds. The Port’s arguments were denied and the dumping was stopped. (Beers 2001)

By 1989, there were about 300 permanent fishing vessels operating out of Pillar Point Harbor [Figure 9]. About 200 or so transient vessels also operated out of Pillar Point Harbor yearly in their pursuit of seasonal fisheries, such as salmon and Dungeness crab, making Pillar Point home to a significant fleet. (Connelly 1989; Scholz, et al. 2006:74) Statewide the number of commercial fishing vessels declined from a statewide high of about 7,000 in the 1980s to less than 2,000 in 2003; this decline was reflected in the number of fishermen operating out of Pillar Point Harbor. (Scholz, et al. 2006:viii) During a 2004 off-season visit to Pillar Point Harbor, only 94 active commercial fishing vessels were observed. When interviewed in 2002 “local fishermen reported that only 24 vessels in the harbor fish to

make a living and do so exclusively.” (Scholz, et al. 2006:74) Not only has the size of the fleet declined, but in general there are no young entrants into the fishing industry. (Scholz, et al. 2006:viii)

Since 1992, the waters off Half Moon Bay have been a part of the Monterey Bay National Marine Sanctuary. According to information found in Starr’s Trends in Fisheries and Fishery Resources 2001, fishing is still an important activity within those boundaries (Starr, Cope & Kerr 2001:11) Starr examined area fisheries for the period 1981-2000, and found:

“More than 1,200 commercial vessels fish [along the San Mateo Coastline] annually, but not all vessels fish year- round. Many vessels switch gear types and target various species during different seasons or years, depending on abundance and demand for a given species. A large number of vessels also fish in other parts of the state or nation, and enter [these] waters to land and sell fish to local ports ... The number of nonresident vessels fishing ... depends on species abundance, market price, and fish abundances in other locations.” [Starr, Cope & Kerr 2001:11]

Overall, Starr found that the number of fishing vessels at Pillar Point had declined about 40 percent over the 20-year period, in part reflecting limited entry programs, increased restrictions and market changes. (Starr, Cope & Kerr 2001:11)

Although fishing strategies may not change much over time, commercial fishermen change gear types regularly “to match fish abundance and availability, and regulation changes” (Starr, Cope & Kerr 2001:12; Langdon-Pollock 2004) Attached as Appendix D is a description of some of the more common commercial fishing gear types historically used by fishermen from Pillar Point. In more recent years, net usage has declined in general, and the use of other types of gear has increased, due for the most part to increased regulations. (Starr, Cope & Kerr 2001:12) Today, it is common for Pillar Point’s fishermen to travel to more northern fishing grounds, or down to the Monterey Bay area, and return home to sell their catch. (Starr, Cope & Kerr 2001:13) In 2004, Pillar Point Harbor still housed three wholesale fish buyers and several others were located just off the local harbor premises. (Langdon-Pollock 2004; Scholz, et al. 2006:75) About 90 families residing in the Princeton community were dependent on the fishing industry. (Langdon-Pollock 2004) In recent years, the Pillar Point fishermen worked hard to develop direct marketing, and the harbor has become a popular weekend shopping destination for many San Francisco Bay Area families looking for fresh seafood [Figure 10]. Retail sales of local seafood are also conducted at two on-site fish markets found in the Harbor.

Over the years Pillar Point’s fishermen harvested a great variety of species, including many of those listed on Appendix E, “Species harvested in MBNMS from 1981-2000.” (Scholz, et al. 2006:62; Starr, Cope & Kerr 2001:133-137) In order to continue to exist, fishermen operating out of Pillar Point have been required to adjust to rapid changes in fishery management. In 1909 the first individual commercial fishing license cost \$2.50. (CA Fish & Game 1952:23) Today’s basic commercial fishing license costs \$101.50, but to be successful commercial fisherman must also purchase a multitude of permits from various government entities in order to conduct their business. Table 4 shows the fees for many of the commercial fishing permits sold by the State of California in 2006; there are also federal fishery permits which are not shown. Additional licenses and permits are also required for fishermen engaging selling their catch directly to the public.

In January of 2006, Ecotrust released its “Socioeconomic Profile of Fishing Activities and Communities Associated with the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries,” in which they examined the fisheries of Pillar Point for the study period 1981 through 2003. In general, Ecotrust found “the fisheries in the study area are more valuable than in the state as a whole. This is a testament to the success of local fisheries in identifying and targeting economically significant species, the local abundance of species, and ready access to some of the most lucrative seafood markets in the state.” (Scholz, et al. 2006:viii) According to Ecotrust, during the study period landings and revenues at Pillar Point exhibited “an interesting pattern,” with landings peaking at an annual average of 8.4 million pounds early in the 1990s, while revenues peaked and averaged “close to \$8 million a year from 1986” through 1990 [Table 5]. They connected this pattern to coinciding strong salmon and crab seasons, as well as higher prices then in effect. Additionally, Ecotrust found that from 1981 to 2003 “the number of commercial fishing vessels making landings increased to 739 in 1989 and has since declined steadily to around 200” [Table 6]. (Scholz, et al. 2006:73)

Pillar Point Harbor currently has two bait and sport tackle shops and about a dozen charter fishing vessels. Nearby is a small commercial fishing gear store. Fuel is available at the end of the main pier, as well as crushed ice. The now aging ice plant, when working, produces 50,000 pounds of ice daily and can store up to 80,000 pounds total. With ice used by both the fishing vessels and the wholesale fish buyers, often this quantity of ice is not enough to meet their needs (Scholz, et al. 2006:75) When ice is in high demand, fishermen are required to register in advance, and often are only allowed a small portion of what they would normally use. For many years, there was also a boat yard in Princeton, but in 2003 the value of the real estate exceeded the value of the boatyard and it was permanently closed and sold. (interview with D. Temko, 4/12/2006) Historically the commercial fishermen would paint their boats every spring, just before the opening of salmon season. The appearance of many boats today reflects declining traditions as well as the state of the fisheries. (Scholz, et al. 2006:74)

One Coastside resident recently wrote: “in the 1980s, my dad made his living as a commercial salmon fisherman [at] Pillar Point Harbor It's a different harbor now. Pleasure boats outnumber commercial fishing boats. Strict government regulations and environmental policies, the high cost of fuel, and the growth of the farmed-fish industry have all played a role in influencing commercial fishing along the California coast.” Another long-time resident, Joanne Franklin, opened a restaurant at Pillar Point Harbor over 30 years ago. The walls of the Ketch Joanne display pictures of some of the commercial fishing boats that berthed at the harbor over the years, many of which along with their captains are now long gone. When the restaurant opened, most of Joanne's customers were commercial fishermen and locals. Although the restaurant reserves a table where local commercial fishermen socialize, today the restaurant caters to tourists. The daughter of a commercial fisherman herself, Joanne laments the decline of the fishing industry and its effect on Pillar Point Harbor. “It's sad,” says Joanne, “there are fewer than 10 old-time commercial fishermen on the Coastside.” (Balkwell 2005)

Today Pillar Point is considered a salmon and crab port; as such, its future is in jeopardy. In 2006 federal fishery regulators enacted the most restrictive commercial salmon fishing season in California's history in order to protect Klamath River salmon stocks. At this point, it's uncertain what the impacts of these restrictions will be on the future of this port, Pillar Point's salmon trollers and the entire commercial salmon troll industry. Additionally, in recent years local crab resources have been harvested in large numbers by vessels from out of the area and then landed in other ports, to the detriment of both the local fishermen and fish buyers (Parr 2004) Unless some sort of protective action is taken in the near future, much like Pillar Point's historic whaling station this colorful village of commercial fishermen is likely to disappear.

Abalone Fishery, ca 1850

In the 1850s, Chinese fishermen started California's first commercial abalone fishery, harvesting abalone in shallow waters. Working from skiffs, they would dislodge the abalone with long pry-poles, and then gaff them into their boat [Figure 11]. (Cox 1962:76; Leet, et al. 2001:89) The abalone were then dried and shipped to China, along with the shells. In the 1870s, the value of the shells for use in trinket-making was twice that of the meat. (Cox 1962:76) Some of the earliest San Mateo coastal fishermen were Chinese harvesting abalone from along the shores of Half Moon Bay. The February 2, 1889, edition of the Times-Gazette reported: “Seven Chinese fishermen have located a fishing station on the bluff bank near Amesport Landing on what is known as the Eddy place. They will ship fish, abalone, etc. to the San Francisco markets” (Schellens N.d.b:298) It's unclear how long this particular fishing station was in operation, by early 1900 the Chinese abalone fishery was eliminated by the statewide closure of all shallow waters to commercial fisheries. (Bannot 1949:160; Cox 1962:77; Leet, et al. 2001:89) (Note: This could very well be the same “Chinese fishing camp” mentioned on page two of this report as existing until about 1910.)

The next fishermen to arrive on the California coast also came search of abalone, but this time they were Japanese. The Japanese fishermen brought to California the skills necessary to free-dive abalone [Figure 12] and also later introduced hard-hat equipment to the fishery [Figure 13]. (Bannot 1949:160; Cox 1962:77; Leet, et al. 2001:89) In October of 1900, the Times-Gazette reported a new fishing venture on Half Moon Bay: “a band of Japanese [who] have founded for themselves a home down on our beach, where their principal occupation is to gather the abalone that here abound.” (Schellens N.d.b:355) Other fishermen who were anxious to know the Japanese hardhat method of diving but not willing to accept them as part of their fishing community spent many hours peering through binoculars in order to learn their methods. Gradually, the dive skills were mastered by others, but until about 1930 Japanese divers dominated the fishery. (Cox 1962:77; Bannot 1949:160) The Japanese method involved a crew of five: the diver, someone to tend his line, someone to cut kelp, someone to operate the pump and a boat captain

[Figure 14]. Rather than anchor the boat, the captain would stay with the diver while he walked along the bottom. (Cox 1962:78) The early abalone divers generally worked at depths of about 25 to 60 feet, although they could go as deep as 100 feet; a diver might roam as far as eight miles in one day, walking along the bottom collecting abalone. Baskets woven of net were used to carry the abalone [Figure 15]. (Cox 1962:80) In 1941 about half the abalone dive crews working in California were of Japanese heritage; their lives were completely disrupted by the forced internment undergone during the war years, and by 1948 the Japanese still had not returned to the fishery. (Bannot 1949:160-161)

By the late 1940s, white commercial abalone divers were working the Half Moon Bay reefs [Figure 16], but it appears their recordkeeping may not have been very thorough. The Department of Fish and Game described the Pillar Point fishery as “a weak marginal fishery ... where one or two divers occasionally land four to six dozen abalones on a weekend or when other fishing is slow.” (Cox 1962:103) Long-time resident Nat Johnson recalled that one early abalone diver, Les Pierce, used to gather so many abalone “the boat would almost sink;” and that one time he came in with over 100 dozen abalone gathered in about three hours from one rock inside the bay [Figure 17]. Ernie Mangué told the story of how when he first arrived in Half Moon Bay, Les Pierce was leaving and warned Mangué that he had already collected all the local abalone. Nevertheless, for a period of about ten years Mangué was reported to have taken “1,000 dozen a year.” Mangué and his wife also operated an abalone processing shop which eventually expanded to become “Ida’s Seafood Grotto,” a Princeton landmark for many years. Other Pillar Point divers of that era included Roy Fox, Charlie Fagg, Jim Kestor, Mike Bishop and Ernie Mangué’s two sons, Rudy and Ron. (Lundy 1997:107-108) Late in the 1950s, a few divers from southern California introduced a new method using wetsuits, fins and a mask, with a hose for air which was supplied by a compressor aboard the boat instead of the expensive, heavy gear which was then common [Figure 18]. Using this new method, it was possible for more than one diver to work from each boat, limited only by the reach of their air hoses [Figure 19]. The divers carried large abalone baskets, and when one was full, the bag would be floated to the surface by an attached separate bag, carried just for this purpose and filled with air from the hose. Once at the surface, the bag would be tied off to the side of the boat and the diver would return to the bottom with an empty bag to collect more abalone. Within a few years, this cost-efficient method had spread to central California. (Cox 1962:80) In the 1960s, California’s abalone fishery was still modeled on the Japanese method, and much of their gear was still made in Japan. Other than the fact that by this time the pump operator had been replaced by a compressor, the composition of the crew was essentially the same. (Cox 1962:77)

Working the coastal reefs around Pillar Point, divers averaged ten to 15 dozen red abalone a day during the 1970s. The introduction of faster boats into the fishery, combined with improvements in diving technology, all increased the efficiency of the commercial abalone fleet and allowed for the expansion of their traditional fishing grounds. In the 1970s, Pillar Point’s commercial abalone divers would routinely work from as far south as Año Nuevo out to the Farallon Islands and up to the San Francisco County line, the northern boundary for legal commercial abalone harvest. (Lundy 1997:176) Because of the frequent sightings of great white sharks in the area of the Farallon Islands, abalone there remained to a large extent undisturbed until the mid-1970s. By the early 1980s, increased demand and high prices resulted in increased risk-taking, and several divers working at the Farallon Islands were bitten in their quest for riches. (Lundy 1997:178)

In an attempt to protect the resource and control harvest, in 1977 California began a limited entry program for commercial abalone diving. (Leet, et al. 2001:73) Despite the limiting of harvest, in the 1980s and 1990s California’s abalone resource was plagued with disease problems and continued to decline. In 1994, the state prohibited the harvest of black abalone, and in 1997 a moratorium on all commercial abalone harvest was imposed. Today, only sport diving for abalone is permitted north of San Francisco. (Lundy 1997:180; CA Fish & Game 2006a) As the abalone resource recovers, California Fish and Game Commission’s 2005 Abalone Recovery and Management Plan calls for considering opening limited commercial and recreational abalone fisheries in areas now closed, beginning with San Miguel Island. The Department of Fish and Game is currently seeking applicants for an advisory group to help plan the first such limited abalone fishery, expected to take place in 2007. (CA Fish & Game 2006a)

Sardine Fishery ca 1916

Responding to increased food demands brought on as a result of World War I, in about 1916 California’s commercial fishermen began targeting sardines and the legendary California sardine fishery started to develop.

(Leet, et al. 2001:299; CA Fish & Game 2006b) During the First World War the sardine fishery expanded rapidly, a hint of things to come. (CA Fish & Game 1949:27) Fishermen and packing houses were not the only ones to profit; it also benefited can-makers, box factories and boat builders. (Svanevik & Burgett 1992) For over 20 years sardines dominated California fisheries due to the coinciding of a number of factors including a large demand for both canned sardines and reduction products from sardines, such as fish oil and meal; the development of more efficient fishing gear; and, most importantly, an abundant supply of fish near major fishing ports [Figure 20]. Between 1916 and 1936 demand, effort and landings all increased, to the point where the Pacific sardine harvest was the largest West Coast fishery and the tonnage landed exceeded the combined catch of all other fisheries [Table 7]. (CA Fish & Game 1949:27; Leet, et al. 2001:299) Fishing with mid-sized (30 to 50 foot) gasoline-powered vessels, the fishermen initially harvested sardines using “round haul” nets known as lamparas. (CA Fish & Game 1949:30)

By 1925, the purse seine had been introduced; this mechanized system quickly replaced the more labor-intensive lampara nets originally used and allowed for an increase in the size of both nets and vessels. Like most fishing gears, purse seines have been modified over the years; the illustrations in Appendix D reflect many of the same general principals of the early seine equipment. (CA Fish & Game 1949:30) The shift to purse seines also enabled virtually every port and inlet along the Northern California coast to have a working cannery. (Svanevik & Burgett 1992) By the early 1940s, a cannery was built at Princeton; with its own wharf for unloading sardines, Princeton Packers was located just to the north of Patroni’s pier, “on the highway through Princeton between the Princeton Hotel and Hazel’s.” (Stanger 1946:176; Jenkins 2005:16) When reminiscing about the 1940s, long-time resident James Jenkins recalled:

“My buddy Mac and I were very familiar with this place as our girlfriends, Carmen and Maxine, got a job there putting fish in the cans [Figure 21 and Figure 22]. We waited for them on Saturdays until their quitting time and drove straight over the hill to the theater with the best movie. Their clothes reeked of fish and their hair absorbed the cannery smell. It kept us from snuggling in the warm theatre.” [Jenkins 2005:16]

Another local cannery, Romeo Packing Company, was founded by Joe Romeo in the 1940s. Romeo’s featured a logo on their cans of a “fish with glasses named Charlie, after Joe’s son,” which was eventually sold to Star-Kist, came to be known as “Charlie the Tuna” [Figure 23 and Figure 24]. (Romeo Packing Co. 2002)

Although some of the sardines harvested during the 1930s and 1940s were canned for human consumption and small quantities were used for bait, the primary use was for reduction to fish oil and fishmeal. For the most part, California’s sardine processors started as cannery but quickly learned that reduction was more profitable. Charged with providing for fish “restoration and preservation,” California’s Fish and Game Commission attempted to restrict the harvest of sardines for fishmeal, oil, fertilizer, and other purposes, collectively known as “reduction fisheries.” (Radovich 1982:59-61) To bypass State control, reduction ships anchored in the open ocean, outside State jurisdiction, and purse seiners unloaded directly to the ships [Figure 25]. The first such reduction ship to operate offshore was the Lake Miraflores [Figure 26], and in 1931 she could be found operating off the San Mateo County Coast rendering sardines into fish oil and fertilizer. (Radovich 1982:61; Daly City Record 1931) In 1931, there were 25,970 tons of sardines landed at Princeton and an additional 10,960 tons processed by the offshore reduction ships. In 1938 the State prohibited all deliveries to offshore reduction ships, ending this practice. (Radovich 1982:61-62)

The number of vessels participating in the sardine fishery did not increase after the mid-1930s, but the fishermen did become more efficient and electronic devices such as radio telephones and fathometers began to play a role in the sardine harvest. The composition of the fleet shifted to larger (up to 100 foot) vessels, powered by diesel engines, using much larger nets and capable of holding up to 250 tons of sardines at a time. These larger nets and vessels meant sardine fishing was no longer confined to waters near major ports, such as Monterey, but instead fishermen could now work as far away as the Farallon Islands. (CA Fish & Game 1949:29-30) About this time seine skiffs were also motorized. (CA Fish & Game 1949:198) The statewide catch reached its peak in 1936 at one and a half billion pounds and then leveled off until about 1945. (CA Fish & Game 1949:27; Leet, et al. 2001:299) World War II again brought increased demand for canned fish, but the California sardine harvest did not increase. Instead, it resulted in more than half the harvest being canned for food instead of being reduced to fishmeal and oil, as had been the norm. (CA Fish & Game 1949:29)

After 1945, a rapid decline in landings triggered a fishery failure, resulting in a financial crisis for the fishing industry from which it was difficult to recover. (CA Fish & Game 1949:27) In the San Francisco area, which includes Pillar Point, sardine landings ceased completely by 1952. (Leet, et al. 2001:299) Following the crash of the sardine fishery, Princeton Packers laid 100 cannery workers off for a short period of time and converted their packing operations from sardines to Brussels sprouts in an attempt to try and stay in business, even though it would be less profitable. (Svanevik & Burgett 1992) By 1954, only Romeo Packing Company remained in business; rather than can fish, they were manufacturing liquid fertilizer. (interview with C. Romeo, 4/26/2006; U.S. Commerce Dept. 1959:136) Although there were some short-term increases, in general the sardine fishery declined to landings of less than 1000 tons a year by the late 1960s, and a moratorium on all directed take of sardines was imposed. (CA Fish & Game 2006b; Leet, et al. 2001:299) Fishery biologists have since determined that an unfortunate “combination of unfavorable ocean climate conditions and overfishing led to the steady decline in sardine abundance from the 1940s to 1960s.” (CA Fish & Game 2006b)

In the 1980s, commercial fishermen began regularly encountering sardines in other fisheries, so much so that by 1986 it was determined that a directed sardine fishery could again be established. As the result of careful albeit late management, on January 15, 1999, the State of California declared “Pacific Sardine Resource Now Officially Recovered.” (CA Fish & Game 2006b) Today, the sardine population is estimated at over a million tons. Sardines again occupy their entire historic range, from Mexico to Canada, and the revived fishery is considered a true success story for both the sardines and California’s fishery managers [Figure 27]. Pillar Point is home to one local sardine fisherman, a second-generation Half Moon Bay fisherman named Michael McHenry who today fishes with his son aboard his purse seiner, the Merva W. [Figure 28]. (interview with J. Anderson, 5/3/2006)

Shark Fishery, ca 1937

Traditionally, most commercial fishermen have shifted effort among different fisheries, generally based on abundance, seasonal opportunities and price inducements. Perhaps the best example of a shift for price inducements would be the unexpected rapid development of the shark fishery during World War II due to increased demand for liver oils for high-potency vitamin A. (CA Fish & Game 1940:9) Prior to 1937, California’s shark fishery was devoted to the production of food and with the exception of dehydrated fins for soup, demand was low. Occasionally sharks were targeted with longlines and some were also incidentally taken in gillnets. (Ripley 1949:129) During World War II, the cod fishing fleet was unable to fish in the North Atlantic, resulting in curtailment of cod liver oil production in Europe. Looking for alternative sources of fish oil, in 1937 the F. E. Booth Company demonstrated “that the soupfin shark had great quantities of very high potency vitamin A in its liver,” and almost overnight the prices shot up from as little as \$0.10 per pound to as much as \$15.00 per pound. (interview with N. Johnson, 3/29/2006; Ripley 1949:129) As a result, while most of the nation was in the midst of the Great Depression, California’s commercial fishermen were making money. (McEvoy 1986:141) Between 1936 and 1944, California’s commercial fishermen harvested “one of the greatest bonanzas reaped from the sea,” landing over 24 million pounds of soupfin shark, as the result of this boom in demand for vitamin oils. (Ripley 1949:131) During this period, it was not uncommon for the first successful shark fishing trip to net the fishermen the entire cost of building and outfitting his vessel. “Shark fever” rapidly spread through the industry, attracting many boats and fishermen. (interview with E. Köepf, 2/16/2006; Ripley 1949:129) Shark fishing dominated California’s fisheries until 1941, and landings of all other species declined as fishermen targeted sharks. (CA Fish & Game 1949:63) Simply put, some fishermen “made fortunes.” (interview with N. Johnson 3/29/2006)

Pillar Point fishermen who were able to take advantage of this situation targeted sharks in the waters off Half Moon Bay; frequently they were joined by fishermen from Monterey and San Francisco. (Scofield 1947:36; Ripley 1949:131) While the preferred method of harvest eventually evolved from longlines to gill net, initially set lines of about 600 feet in length made with manila rope ground lines and cotton leaders were used, generally fished in from 10 to 100 fathoms of water. (Ripley 1949:129) Large hooks were used that were baited with anchovies, herring, sardines, mackerel or whatever oily fish was available. Oftentimes the number and size of hooks used depended on the number and size of sharks known to frequent the area. For example, when trips were made to the Farallon Islands, fishermen might choose to only set 70 hooks per line, whereas when fishing in Half Moon Bay the fishermen might have used as many as 200 hooks. Typically a boat would have a two-man crew and fish eight to ten baskets of line per trip. (Scofield 1947:36-37)

When fishermen first began harvesting sharks for vitamin oil, they would land the whole shark; fish buyers would remove the livers and then sell them to vitamin processors or brokers. After the first couple of years, the fishermen discovered the livers to be worth quite a bit more than they had been receiving, and so they began to remove and sell just the livers. (Ripley 1949:131) According to one long-time resident, for a brief while “the beaches of Princeton were littered with dead sharks;” it “didn’t last too long, but the fishermen made hay while the sun shined.” (Jenkins 2005:16) The fishermen delivered the livers packed in five-gallon cans which were then held in cold storage until auction. Prior to auction, core samples would be taken and the livers would be tested for vitamin content; fishermen were paid based on that content. (interview with N. Johnson 3/29/2006; Ripley 1949:132) Fishermen quickly learned that the livers from female sharks had lower vitamin and oil content; in order to get top prices they would separate the female livers from the males. (interview with N. Johnson 3/29/2006)

By the mid-1940s, most shark fishing was being done from larger vessels using gill nets pulled by mechanized “net gurdies,” although there were a few smaller vessels found in Southern California still fishing with hook and line. The gill net vessels averaged about 65 feet in length and fished all year, up and down the entire coast. (CA Fish & Game 1949:198) About this same time synthetic vitamins were developed, easing the demand for shark livers, and eventually the fishery just died out. (Leet, et al. 2001:255)

Trawl Fisheries, ca 1860

Historically, over three-fourths of all groundfish (includes Dover sole, rockfish and other bottom-dwelling species) landed in California have come from trawl fisheries. (Sampson & Crone 1997) The first West Coast trawl fisheries began in the 1860s, with fishermen from San Francisco towing Italian-style nets known as “paranzella” between pairs of lateen-style sail boats. (Goode 1887b:608; Scofield 1948:17, 22; CA Fish & Game 1949:64; Hagerman 1959:9) Sailing in tandem, the two vessels would keep the net open and on the bottom by maintaining the proper distance from one another. By early in the 1870s the fishing grounds inside San Francisco Bay had begun to be less productive, and so San Francisco’s paranzella fleet began to fish within a day’s sail of San Francisco, returning to the City each afternoon with their catch. (CA Fish & Game 1949:63-64) Eventually, there were about ten of these large boats, all owned by the San Francisco fish wholesalers who controlled the fishery, and they would sometimes fish off the San Mateo coast. (Goode 1887b:608) Meanwhile, Pillar Point’s earliest commercial fishermen either fished from the rocks or had smaller vessels that were not suited for trawling. Day fishing, they harvested local rockfish using a variety of gears such as gillnets, traps, setlines and troll gear similar to those shown in Appendix D. (Pacific Marine Conservation Council 1997) For the most part, these fisheries have continued to exist in concert with trawl fisheries, and today many of Pillar Point’s commercial fishermen use similar types of gear, with the exception of gillnets which are prohibited in San Mateo coastal waters in order to protect diving birds and marine mammals. (Sampson & Crone 1997)

In 1942, the government fixed the price for rockfish at a low level which made it difficult for many small boat fishermen to profit. (CA Fish & Game 1946:7) The new gasoline-powered engines of the early 20th century allowed for an increase in trawl fisheries by enabling the towing of otter nets by one smaller vessel rather than the two large vessels required for towing paranzella nets, thus reducing operating overhead to where fishermen could profit even at the government-fixed rate. (CA Fish & Game 1949:65-66) Within two years the development of the balloon trawl (an otter trawl modified to fish a little off the bottom) [Figure 29] allowed trawlers to fish even more economically and statewide landings of fresh rockfish increased greatly. (CA Fish & Game 1946:7; 1949:197) By 1944, the otter-style gear was so successful that paranzella nets were no longer used. In place of a small number of company-owned paranzella boats, the trawl fleet expanded to over 80 boats by 1947, many owned and operated by individual fishermen. (CA Fish & Game 1949:64, 197; 1952:30) By this time, the trawl fleet also included a large number of boats that came down each year from the north after their halibut season ended. The average trawl vessel size increased from about 50–55 feet to 60–70 feet, with some even larger. Manila towing lines were replaced by steel cable. As the years passed, trawlers began equipping their boats with heavier gear and lengthening the cables, which enabled them to fish both in deeper water and farther offshore. (CA Fish & Game 1949:197-198)

Shortly after World War II, Pillar Point Harbor became home to a few small trawl vessels [Figure 30], which fished otter-style gear very similar to that in use today, towed by a single vessel with a small diesel engine [Appendix D]. (Sampson & Crone 1997; interview with N. Johnson, 4/12/06) During the 1940s when not fishing crab sometimes Nat Johnson trawled with his small boat, the Polaris. (interview with N. Johnson, 4/12/06) Often the larger vessels were owned and operated by canneries, as was the case with the Constance Romeo, a trawler owned and operated by

Romeo Packing Company for several years until it sank off Pigeon Point in the early 1950s. (interview with Charlie Romeo 4/26/2006)

In the early 1960s there were also foreign factory trawlers fishing off the California coast; by 1966 there were over 115 boats in that fleet, some of which were over 300 feet in length. By the mid-1970s, as many as 60 of these mostly Soviet and Japanese vessels could be found fishing off the San Mateo coast. (Pacific Marine Conservation Council 1997; Foster 1989:29) In 1976 the federal government enacted the Magnuson Fishery Conservation and Management Act ("Magnuson") barring foreign fishing interests from operating within two hundred miles of the U.S. coast. Subsequently, with federal assistance, the Pacific trawl fleet was expanded. (Scholz, et al. 2006:viii) As a result of this build-up, trawl landings at Pillar Point "peaked in 1990 at over 4 million pounds." (Scholz, et al. 2006:74) Meanwhile, fishery scientists were starting to be concerned about dwindling stocks of groundfish, and in 1982 the federal government began restricting the harvest. In 2002, bottom fishing on most of the continental shelf within California waters was banned to protect threatened stocks. (Wilson 2003) Currently, Pillar Point's trawl and hook and line fisheries have significantly declined due to these and other regulatory restrictions. (Wilson 2003; Scholz, et. al. 2006:74)

In 2003, NMFS initiated a buyout program, hoping to retire about half the West Coast trawl vessels, reducing overfishing and at the same time allowing those who chose to stay in the fishery increased opportunity through the sharing of fishery quotas previously allocated to retired vessels. Pursuant to that program, the federal government provided \$46 million in funds to buy licenses from trawl fishermen wishing to sell, and those who elected to not sell and stay in the fishery would repay those funds through a five percent assessment on annual fish landings. (Wilson 2003)

Dungeness Crab Fishery, ca 1916

The Dungeness crab fishery was one of California's earliest fisheries, and the State was quick to enact legislation to protecting this valuable resource. In 1897, the sale or possession of female crabs was prohibited, followed six years later with regulations creating minimum size limits on male crabs and a two-month season closure. (CA Dept. Fish & Game 1949:151-153) (Since those early days, these regulations have been modified and many others added.) As early as 1916 the San Mateo Coastside was gaining a reputation for having enormous quantities of "great big crabs that are not surpassed in flavor by any crab in the world," and that reputation has not changed. (Alexander 1916:110) Dungeness or "market" crabs were harvested by Pillar Point's commercial fishermen using hoop nets [Figure 31]. (CA Dept. Fish & Game 1949:153) As with other fisheries, fishermen from out of the area also fished crab along the San Mateo coast, so much so that by the late 1940s the waters off Pillar Point were considered to be one of California's main crab fishing areas. (CA Dept. Fish & Game 1949:151) By that time, most crab fishermen had switched from the closely-tended hoop nets to sturdier traps which were buoyed and could be left at sea [Figure 32]. (interview with Nat Johnson 3/29/2006; CA Dept. Fish & Game 1949:153) The first traps used by Pillar Point crab fishermen were square traps such as those Johnson used when he began to fish crab aboard the *Polaris* in 1942. (interview with N. Johnson 3/29/2006) Over time, this gear evolved into the round traps used by today's fishermen and shown in Appendix D. (CA Dept. Fish & Game 1949:153)

When Johnson started fishing, "they could catch so many crabs they could've gotten rich," but "there was no market for them. The markets came after the war." During World War II, the U.S. Navy closed the port of San Francisco and it was difficult for fishermen to leave that harbor. Johnson could only recall three boats fishing out of Pillar Point at that time, and said what they did catch was often sold directly to San Francisco restaurants whose representatives were there waiting when the boats returned to port. (interview with N. Johnson 3/29/2006)

Prior to 1947, trawlers would often target crab with their nets, at times catching so many that they would flood the market and cause the price to drop, and Pillar Point's fishermen were unable to compete in their small boats. (CA Dept. Fish & Game 1949:151) In 1947, legislation was enacted which prohibited trawl vessels from landing more than 500 pounds of crab, thus protecting both the resource and the small fishermen's ability to protect their market price. (CA Dept. Fish & Game 1949:153)

During the 1950s, crab fishing was "a lucrative job" for Pillar Point fishermen but the hazards were great. Major hazards included the potential loss of boats and lives; minor hazards included poachers tampering with crab gear left

at sea. (Krogh 1959:3A) Jenkins described a 1940s-era hazard which crab fishermen still face: passing ships accidentally snag buoy lines attached to crab traps and either the lines get cut by a propeller or the trap gets dragged out of line and lost. This problem is especially common if a string of crab traps are left in the vicinity of San Francisco's shipping lanes. (Jenkins 2005:24)

In 1995, California enacted a limited entry program for the harvest of crab; today about 500 vessels hold such permits. (Leet, et al. 2001:74) Crab landings seem to go in cycles, and peaked most recently in the 1990s, although recent crab landings have continued to be significant [Figure 33]. The crab fishery continues to be of major importance to Pillar Point fishermen and during the winter months tourists flock to the harbor on weekends to take advantage of off-the-boat crab sales. (Scholz, et al. 2006:74)

Salmon Troll Fishery, ca 1900

Ocean salmon troll fishing received a boost in 1901 when the process known as "mild-curing" of salmon (whereby fish weighing over 15 pounds were split away from the backbone, and the two sides salted down for a time in 800-pound barrels known as "tierces" then stored in a mild brine solution) was developed, which enabled the storage of quantities of salmon. With this increased ability to store salmon and supply markets over a longer period of time, ocean trolling increased so that by 1904 there were over 175 boats trolling salmon on Monterey Bay, three of which were powered by gasoline. By 1908 many of the smaller boats fishing at Monterey and San Francisco had gasoline engines. Two years later, over one-third of all boats at San Francisco had gasoline engines; and some of those gas-powered boats were beginning to travel as far south as Monterey to troll for salmon. As gasoline engines continued to replace sails, salmon trolling slowly spread northward from Monterey Bay, and as early as 1914 Pillar Point's fishermen were trolling for salmon. Within about ten years of the expansion of salmon trolling, the ocean troll harvest roughly equaled the traditional in-river gillnet harvest. (CA Fish & Game 1949:43; Scofield 1956:11-12)

As the ocean troll fishery developed, fishermen and boat builders adapted their craft to suit their needs, transforming the Italian in-river gillnet boat into what is known as the "Monterey clipper" [Figure 34]. Typically the Monterey clippers were powered by single-cylinder gasoline engines which were designed and built locally in San Francisco. Adaptations made included the raising of the bulwarks and flaring of the bow in order to ward off heavy seas. The stern of the original gillnet vessel was also lowered so that fishermen would be able to freely work their troll lines. Once fully adapted to ocean fishing, the little Monterey clippers were suitable for use in a number of different fisheries and could accommodate two fishermen for several days at sea. (McEvoy 1986:129; U.S. Commerce Dept. 1928:42) A few of these sturdy little vessels are still in use today.

With their small vessels, Pillar Point's fishermen day fished for salmon, leaving early in the morning and returning that same afternoon or evening. (CA Fish & Game 1949:43; interview with N. Johnson 3/29/2006) All work was done by hand aboard these early troll vessels, with the exception of powering the boat – for this, the fishermen utilized sails or small engines. In the 1920s, a typical trolling vessel was 28 to 30 feet long and had two to four poles. The fishermen fished as many as nine lines, with four or more hooks, using lead weights of up to 30 pounds to keep the gear at the proper depth, and when the salmon were biting, it was exhausting work. (CA Fish & Game 1949:43)

Along with Nat Johnson on his Polaris, in the 1940s, local Pillar Point salmon trollers included Ernie Köepf, Sr., on the No-B, Henry Bettencourt aboard the Evon, and George Bettencourt on the Irene. (interview with N. Johnson, 3/29/2006; interview with E. Köepf, 2/16/2006; Jenkins 2005:24) Henry's other brothers Manuel and Ernest both also had fishing boats, and according to Johnson during the winter months the Bettencourt brothers would fish ring nets for crab out of San Francisco but they would bring their boats to Pillar Point in the springtime, and in addition to trolling salmon for the next several months the Bettencourts occasionally "hailed a few passengers out for sport fishing and they'd fish a few crab." (interview with N. Johnson 3/29/2006)

The backbone of the salmon industry, the salmon gurdy [Figure 35] was developed in 1931 by a Seattle firm. As a northern development, it had to work its way south; it took over a decade for California's salmon trollers to slowly begin to convert from hand pulling. (CA Fish & Game 1949:43, 44) In 1943, Pillar Point salmon trollers were still utilizing hand lines made of flax, with leaders made from a white cord known as "number 210 Oregon." At some point after World War II, Johnson recalled there was a fisherman by the name of Hansen with "a boat called the

Soupin” who came down from somewhere around Seattle with gurdies on board. As Johnson recalled, at first local fishermen were not interested in such “contraptions,” and said they would not have such things on their boats, “but soon the guy out fished them every day. It wasn’t long [before] they bought gurdies.” (interview with N. Johnson 3/29/2006) Most Half Moon Bay salmon fishermen had converted to salmon gurdies and stainless steel lines by the late 1940s. (CA Fish & Game 1949:44; CA Fish & Game 1949:198)

Legislation enacted in 1947 prohibiting the in-river harvest of salmon resulted in an increase in the commercial salmon troll fleet to about 1,100 vessels. (Scofield 1956:12) By that time, there were more 32- to 45-foot vessels in the fishery, and fishermen on board these larger vessels began staying out of the harbor overnight, carrying ice to preserve their catch. When there were no salmon about locally, some fishermen would travel 30 to 50 miles, sometimes staying out over a week fishing salmon. (CA Fish & Game 1949:43) It was not uncommon for Pillar Point’s salmon trollers to travel to the Farallon Islands in pursuit of salmon. (interview with N. Johnson, 3/29/2006; Jenkins 2005:24) Smaller boats were still used for day fishing, leaving the harbor each morning and returning that afternoon or evening. (CA Fish & Game 1949:43)

Even with the addition of hydraulic power to lift the fish and weights, trolling for salmon was and still is labor-intensive, requiring quick reflexes, physical strength and dexterity [Figure 36]. Although gurdies were added, troll vessels retained the same number of poles. With gurdies the fishermen fished one line per spool, generally equating to six lines. The number of hooks per line was not limited, but most fishermen used between four and 10. (CA Fish & Game 1949:43; interview with T. Stickel, 5/12/2006) When trolling for salmon, fishermen used lead weights of up to about 50 pounds and lures such as wooden plugs, spoons and sardines. (CA Fish & Game 1949:44) According to Johnson, in 1943 Pillar Point’s salmon trollers used mostly brass or bronze spoons about 7” long; bait was only used late in the season if fishing around Fort Bragg. (interview with N. Johnson 3/29/2006) Radio telephones were not generally used by salmon trollers before 1944 which meant sometimes several days might pass between when someone located a school of salmon and when it was discovered by the rest of the local salmon fleet. As the fishermen’s ability to communicate with one another improved, their efficiency was greatly enhanced. With the addition of radio communication, oftentimes the entire local fleet would be able to promptly benefit when salmon were located by one fisherman. (CA Fish & Game 1949:45) Today, with the addition of cellular phones, during the fishing season many fishermen are in constant communication with other salmon trollers from Alaska to Southern California. (interview with T. Stickel, 5/12/2006)

As ocean salmon trolling increased in popularity, salmon runs from the Sacramento and San Joaquin Rivers provided the bulk of the harvest for Pillar Point and other California salmon fishermen. (CA Fish & Game 1949:46) Today, both rivers are dammed. The San Joaquin salmon has been extinct for years. The current status of California’s salmon, their habitat and management are all highly complex issues well beyond the context of this paper. Under the provisions of Magnuson, in the early 1980s fishery managers began restricting fishing seasons to protect declining salmon stocks. In response, commercial salmon trollers requested and the state enacted a limited entry system which went into place in 1983 and was designed to restrict the number and fishing capabilities of salmon vessels, thus preventing overcapitalization of the fishery. From an approximate 7000 salmon vessel permits originally issued in 1983, today the fleet has declined so that there are less than 1,500 vessels still holding California commercial salmon permits. (Commercial Salmon Trollers Advisory Committee N.d.; interview with L. Collins 5/12/2006)

In order to expedite restoration of the salmon resource, in the 1970s salmon trollers also began a comprehensive effort to improve inland salmon habitat through the reformation of California’s land use and water policies; today much of this work is carried out on their behalf by the Pacific Coast Federation of Fishermen’s Associations (“PCFFA”). On behalf of the PCFFA, in 1978 then-State Senator Barry Keene carried legislation which created the California Commercial Salmon Trollers Enhancement and Restoration Program (the “Salmon Stamp Program”) Under this unique program, fishermen agreed to tax their salmon catches in order to fund work necessary to enhance dwindling salmon runs. The program was enacted in 1979; the charter boat fleet voluntarily joined in this self-taxing effort in 1987. In the mid-1990s, the Department of Fish and Game was empowered to “accept donations, lawsuit settlements, bequeaths, or grants from almost any source, for deposit into the Salmon Stamp Account.” One such source of outside funding was a \$150,000 federal grant used to fund salmon restoration projects that employed displaced commercial fishermen working to restore coastal streams. (Commercial Salmon Trollers Advisory Committee N.d.)

In 2003, angered by low dock prices and hoping to attract customers and promote direct sales, Pillar Point's commercial salmon fishermen gave away 200 wild salmon. "We want people to go to their markets and demand wild king salmon instead of farm-grown fish," said Duncan MacLean, local Pillar Point fisherman. As MacLean explained, the fishermen were having a great season, "the salmon are big, and they're abundant." The bountiful catch, combined with competition from farmed salmon imports had caused the price to the fishermen to drop to an un-heard of \$0.75 per pound. Rather than sell for such a low price, MacLean explained, the fishermen "would rather give these fish away to people who would enjoy them." (Finz 2003)

Despite reductions in historic inland salmon habitat and the continued diversion of water from California's rivers, salmon trolling continues to be a major contributor to the economy of Pillar Point Harbor and its fishermen [Figure 37]. (Scholz, et. al. 2006:74) Although the Sacramento River annually produces record numbers of Chinook salmon capable of sustaining commercial and recreational fisheries, stocks in the Klamath River Basin are declining. In 2002, drought conditions in the Klamath Basin led to a massive die-off of an estimated 86,000 adult salmon which had returned to their natal river to spawn. In 2006, when fishermen should have been targeting fish produced by that record run; the Pacific Fishery Management Council instead recommended the most restrictive commercial salmon troll season on record. According to Congressman Mike Thompson, this "decision will severely affect ocean and in-river salmon fisheries along 700 miles of coastline, from Point Falcon, Oregon to Big Sur, California. The economic impact to coastal communities is expected to be devastating." (Thompson 2006) As of this writing, it's still anyone's guess whether the commercial salmon troll fishery and its related support businesses will survive.

Albacore Fishery, ca 1903

Around the beginning of the 20th century commercial fishermen in southern California began harvesting albacore. These early commercial albacore fishermen fished one-day trips off coastal southern California. (Lauris & Dotson 2001) The experimental canning of albacore started in 1906, and public acceptance was almost instantaneous. By 1914 there were 11 tuna canneries operating in Southern California. (Scofield 1956:13; Lauris & Dotson 2001) With the rise in popularity of ocean trolling, small boats began to encounter albacore more often. Sometimes when salmon trollers were unsuccessful they would simply shift effort to the albacore fishery. With the influx of trollers and increased cannery production, albacore quickly went from being considered a trash fish that was "hit on the head and thrown back" to a highly prized fish. (Scofield 1956:13-15) In the 1920s landings of troll-caught albacore began to constitute about half the California catch. Most albacore harvested were caught by fishermen trolling jigs (lures) as show in Appendix D. Many of the vessels used for fishing albacore were also used in other fisheries such as salmon trolling, so much so that one Fish and Game biologist commented that the albacore fleet was essentially "made up of a heterogeneous assortment of boats of many sizes, shapes, and origins - 'anything that will float.'" (CA Fish & Game 1949:198; Lauris & Dotson 2001) Originally strictly a southern California fishery, by 1936 there were fishermen trolling for albacore off the Oregon coast. The advent of the northern fishery resulted in a considerable migration of troll vessels in both directions along the coast. (Scofield 1956:13-15)

From 1928 through 1934 the commercial albacore fishery was considered to be a failure, in part because California's fishermen were not equipped to roam as far from port as necessary to harvest this highly migratory species. (Clemens 1961:51-52) Undaunted, commercial fishermen began to construct larger vessels, better-equipped for staying at sea for multiple days and operating hundreds of miles offshore, resulting in the development of today's successful albacore troll fishery. (Clemens 1961:41, 52) By the late 1930s, albacore fishermen were roaming far into the Pacific Northwest as well as hundreds of miles offshore. (Lauris & Dotson 2001)

For Pillar Point fishermen today, two things determine whether or not they opt to pursue albacore each year: first, the question of whether the fish are available in local waters and second, market conditions. Other factors which also come into play are the relative success of other fisheries and the prevailing weather conditions during albacore season. (Lauris & Dotson 2001) Rising fuel prices are now also a serious consideration for fishermen thinking about fishing albacore. In recent years when albacore made their anticipated late summer appearance along the California coast, Pillar Point's fishermen enjoyed great success marketing their fresh catch directly from their boats.

Martin's Beach Smelt Fishery

Six miles south of Half Moon Bay is Martin's Beach, a private resort. Although there is no wharf and no fish are handled there other than smelt, Martin's Beach is known for its outstanding fishing, both sport and commercial. Smelt, also known as grunion, are a small fish that spawn directly on the beach. Using beach seines, commercial fishermen landed a total of 34,000 pounds for the four-year period of 1948-1951. Sport fishermen also pursued smelt, using dip nets similar to the types used by Northern California Indians for dip-netting salmon. (Scofield 1954:85) Jenkins' reminisced about Martin's Beach in the 1940s:

“Coming home from over the hill on San Mateo Road, you could see the ocean after you passed the Skyline Boulevard intersection. As you started down the hill there was a big billboard with a beach scene saying ‘The Sun Is Shining at Martin's Beach’ in large letters. What the sign did not tell you was that it was a toll road to go down to the beach. There were several small cabins at the end of the road, and a snack shack. It was a crowded parking lot when the smelt were running at that beach.” [Jenkins 2005:34]

Still owned and operated by the same family, today admission to Martin's Beach is \$10.

Other Ports of Landing

From time to time commercial fish landings have occurred at other places along the San Mateo County Coast besides Pillar Point, although never to an extent as to justify any of those places being considered an actual “fishing port.” For example, to the north of Pillar Point, Rockaway Beach was home to several commercial fishermen and an average of 4,000 pounds of troll-caught salmon was landed there and trucked to San Francisco between 1936 and 1940. During the 1940s a few local skiff fishermen landed about 500 pounds of salmon per year at Pedro Point, which was then peddled to local residents of San Pedro Valley; rockfish was also delivered on occasion. Montara, another place that was not a fishing port and had no facilities, recorded landings of 6,000 pounds of mixed fish, including rockfish, sharks, turbot and sole. At Moss Beach a few local fishermen, averaged about 3,000 pounds of crab per year from 1946 through 1949. Just to the south of Pillar Point, Miramar, formerly known as Amesport Landing, only had recorded landings in 1950, even though a wharf had been there since 1867. (Scofield 1954:83-84)

Recreational Fisheries ca 1880

Although commercial fisheries were slow to develop, that does not mean San Mateo County's resources escaped all notice. Situated just south of the rapidly developing City of San Francisco, the wooded mountain streams and long expanse of coastline of San Mateo County quickly became a vacation playground [Figure 38]. Alexander wrote “the good things that are produced on the land at San Mateo are nothing when compared with those found in the waters of the Pacific Ocean,” going on to extol that “there are few sections of the state that are better supplied with game and fish.” (1916:109) During his 1880 survey, Jordan found that at Pescadero “tourists from San Francisco fished for salmon in its season. The run of salmon up the creek is said to have been lessened, owing to the seals, 20 or 30 of which are often observed, in spawning season, to take up a position at the mouth of the stream, almost entirely preventing the salmon from running up. Those who escape alive, when caught bear marks of the seal's teeth” [Figure 39]. Jordan then went on to say that “a great deal of hook-and-line fishing for salmon is done in Purissima Creek by tourists from San Francisco and also by inhabitants of Half Moon Bay”; and that occasionally “some hook-and-line fishing” was done in Gregorio Creek. (Goode 1887b:606-607)

Early in the 20th century, “every low tide [brought] scores of residents and visitors from San Francisco to the rocky reefs where the abalone grow; and those who have had the pleasure of eating abalone know what satisfaction it brings to gather a number of these excellent shell fish” [Figure 40]. (Alexander 1916:110) At Moss Beach, for example, vacationers would gather and enjoy the tidepools, both for abalones and for bathing. Two excerpts from the Daly City Record for the 1913 season help to illustrate the fun enjoyed:

“ July 11: Enrico Biggio and family of Daly City are occupying the Foley cottage. Mr. Biggio is an expert abalone diver and he never goes after them without returning with the limit of 15.” [Filion & Wolfskill 2006f]

“October 3: George E. Dunn, editor of the Coast Side Comet, has taken on added glory in the new role of life saver. Last Sunday while Mrs. Albert J. Evans of San Francisco, who was spending a vacation in Moss Beach, was enjoying a dip in the surf, she was attacked by an octopus which fastened its tentacles about her and almost made away with her into deep water. Editor Dunn and Wm. Grosskurth, proprietor of the Marine View hotel, rushed to the rescue of Mrs. Evans and, after a fierce struggle with the monster, succeeded in effecting a rescue, but not until all three persons were almost exhausted.” [Filion & Wolfskill 2006f]

Following World War I, sport fishing began to evolve from mere recreation into an industry. Sale of recreational fishing licenses more than doubled in the 1930s. Naturally, accompanying this increase in angling was a corresponding increase in impacts on coastal resources, with anglers taking an estimated 3.9 million fish in the period from 1958 through 1961. (Scholz, et al. 2006:ix) During this time Pillar Point’s commercial fishermen routinely took tourists fishing rather than fish for the market. (interview with N. Johnson, 3/29/2006) In the 1940s, Pillar Point was also home to the Miss Princeton, a deep-sea party boat operated by Captain John Texeira, and to a Captain Olsen who would “haul passengers out.” (interview with N. Johnson 3/29/2006; Jenkins 2005:24) It was also in the 1940s that the economic value of sport fishing began to rival that of commercial fishing. (Scholz, et al. 2006:ix) In 1947 California prohibited the sale of fish caught by fishermen holding sport fishing licenses and fish caught on vessels carrying anglers. Before this, it was common for the charter boat operator to sell excess or unwanted catches. (CA Fish & Game 1949:180)

With recreational fishermen increasing in numbers, California’s Fish and Game Department began to consider their impact “a major drain on the supply of some of our choicest ocean fish.” As early as 1932, the State had begun an attempt to determine the magnitude of recreational fishing impacts [Figure 41], and by 1935 logbooks were mandatory on all boats fishing for hire. By 1948, all boats either fishing commercially or taking passengers for hire were required to register with the State Division of Fish and Game and obtain a \$1 permit. (CA Fish & Game 1949:180)

By the mid-1950s, Princeton had become such a popular sport-fishing location that there was “little chance to park a car near the public wharf” during the summer months. Anglers could fish from a couple of the piers, although most preferred a boat trip. There were 15 party boats and a couple of charter boats in operation out of the port, three or four of which were amphibian craft or DUKWs (“Ducks”) that had been acquired by one of the sport fishing enterprises at Pillar Point and were used both to take tourists fishing and as a means of shuttling passengers to the party boats anchored in the harbor. (interview with N. Johnson 3/29/2006; Scofield 1954:84; CA Fish & Game 1949:199) Sport fishing became so profitable that many of the commercial fishermen used their boats to transport fishermen if the opportunity presented itself, rather than fish for the markets. (Scofield 1954:84; interview with N. Johnson 3/29/2006)

By 1961, charter fishing was so popular that 61 percent of all recreational fish landed was caught by charter boat passengers. Between 1961 and 1981, the recreational catch almost doubled but fishermen shifted away from charter boat fishing, and over 70 percent of all recreational landings were caught from private vessels. (Scholz, et al. 2006:ix) Recreational fishermen frequently fish close to port, and so the waters of Half Moon Bay are a popular destination for boat owners using Pillar Point’s six-lane launch ramp. In recent years, this fleet has shifted toward more expensive, powerful boats for fishing an area extending north 28 miles to Duxbury Reef off Bolinas, where salmon is targeted, to a seamount 60 miles to the southwest named “the Guide” where they go in pursuit of tuna. (Scholtz, et al 2006:74-75) The first albacore caught each year “elicits the excitement exhibited each year” by recreational fishermen pursuing albacore. (Laurs & Dotson 2001)

Meanwhile much like the commercial fishing fleet today’s charter boat operators lament increasingly stringent regulations which reduced recreational rockfish bag limits and shortened fishing seasons. (Scholz, et al. 2006:75)

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EXPERTS

Jim Anderson, Commercial Fisherman

Larry Collins, Vice President, Pacific Coast Federation of Fishermen's Associations; Commercial Fisherman

Nathaniel G. Johnson, Commercial Fisherman

Ernest Köepf, Commercial Fisherman

Charlie Romeo, Romeo Packing Company

Tom Stickel, Commercial Fisherman

Dan Temko, Harbormaster, Pillar Point Harbor

FISHING AT PILLAR POINT - TABLES**Table 8: Statistics of the Fisheries of California in 1880. (Goode 1887a:vi-vii)**

Persons Employed: 3,094
Capital Invested: \$1,139,675
Value of Products: \$1,860,714
<u>Persons Employed:</u>
Fishermen – 2,089
Shoresmen – 1,005
<u>Apparatus and Capital:</u>
Vessels: Number – 49; Tonnage – 5,246,80; Value - \$535,350
Boats: Number – 853; Value: \$91,485
Value of minor apparatus and outfits: \$205,840
Other capital, including shore property: \$307,000
<u>Value of Products by Fisheries:</u>
General Fisheries: \$1,341,314
Whale fishery: \$201,650
Seal fishery: \$15,750
Marine-salt industry: \$302,000

Table 9: Value of Landings and Shipments for Princeton, 1945-1976. (From <http://ceo.ucsd.edu/fishbull/>, accessed March 15, 2006)

Value of Landings and Shipments for Princeton, 1945-1976						
Year	Species	Weight	Value	Fish & Game Bulletin No.	Page(s)	Table
1941 ¹	Shark		25700	59		
1941	All other		3000			
1945	Salmon		52900	67	18	7
1945	Crab		20400	67	18	7
1945	Sardine		17800	67	18	7
1945	Abalone		4100	67	18	7
1945	All other		2800	67	18	7
1946	Salmon		33100	67	26	14
1946	Crab		14900	67	26	14
1946	Salmon		12600	67	26	14
1946	All other		4600	67	26	14
1946	All other		200	67	26	14
1947	Shark	21931	66011	74	258	64
1947	Salmon	214871	40482	74	258	64
1947	Crab	155726	20758	74	258	64
1947	All other	225856	8978	74	258	64
1948	Salmon	194989	47870	80	52	26
1948	Crab	120055	12679	80	52	26
1948	Abalone	41616	6093	80	52	26
1948	Albacore	22020	6069	80	52	26
1948	All other	238697	5634	80	52	26
1949	Salmon	377402	84915	80	82-83	43
1949	Crab	257908	33212	80	82-83	43
1949	All other	72131	9112	80	82-83	43
1949	Albacore	54827	8416	80	82-83	43
1949	Sardine	457700	7781	80	82-83	43
1950	Salmon	409634	114042	86	112-113	21
1950	Crab	193221	25506	86	112-113	21
1950	Albacore	119652	22231	86	112-113	21

¹ During World War II, budgets and staffing for CDF&G were reduced, and their record-keeping suffered. According to Fish Bulletin No. 59, in 1941 there were \$25,700 worth of sharks landed in Princeton, and \$3,000 of all other fish. Landings were not again specifically recorded for Princeton until 1945.

Value of Landings and Shipments for Princeton, 1945-1976						
Year	Species	Weight	Value	Fish & Game Bulletin No.	Page(s)	Table
1950	All other	158133	6297	86	112-113	21
1951	Salmon	315966	92388	89	60-61	27
1951	Crab	53973	8302	89	60-61	27
1951	All other	52036	4416	89	60-61	27
1952	Salmon	314062	77699	95	56-57	23
1952	All other	78058	7791	95	56-57	23
1952	Crab	42071	5827	95	56-57	23
1953	Salmon	142565	38856	102	55-56	24
1953	Crab	109762	17683	102	55-56	24
1953	All other	49206	5469	102	55-56	24
1954	Crab	176457	25480	102	91-92	42
1954	Salmon	77970	22947	102	91-92	42
1954	All other	19888	1982	102	91-92	42
1955	Bay shrimp	420280	31311	105	64-65	27
1955	Crab	163879	24992	105	64-65	27
1955	Salmon	60828	20846	105	64-65	27
1955	All other	32132	4171	105	64-65	27
1955	All other	5119	653	105	64-65	27
1956	Crab	269048	28573	105	98	45
1956	Salmon	35652	11936	105	98	45
1956	All other	33920	4797	105	98	45
1957	Crab	431285	37522	108	37-38	19
1957	All other	64843	9913	108	37-38	19
1958	Crab	313310	39884	108	67-68	35
1958	Salmon	16860	7498	108	67-68	35
1958	All other	44011	6060	108	67-68	35
1959	Salmon	153801	71656	111	36-37	17
1959	Market crab	140674	22395	111	36-37	17
1959	All other	33383	5234	111	36-37	17
1960	Salmon	175824	96123	117	37-38	17
1960	Market crab	155747	32146	117	37-38	17
1960	All other	38323	5833	117	37-38	17
1961	Salmon	127735	72898	121	38-39	17
1961	Market crab	53343	13165	121	38-39	17
1961	All other	30551	5305	121	38-39	17
1962	Salmon	270838	172822	125	37-38	17
1962	Market crab	79032	24484	125	37-38	17
1962	All other	38466	5334	125	37-38	17
1963	Salmon	356429	199778	129	37-38	18
1963	Market crab	115866	42268	129	37-38	18
1963	Abalone	84242	14987	129	37-38	18
1963	All other	18818	1847	129	37-38	18
1964	Salmon	400336	234518	132	37-38	17
1964	Market crab	89844	34533	132	37-38	17
1964	Abalone	38721	7238	132	37-38	17
1964	All other	20789	1757	132	37-38	17
1965	Salmon	252803	140770	135	34-35	17
1965	Market crab	42459	14806	135	34-35	17
1965	All other	50623	6308	135	34-35	17
1966	Salmon	81689	47791	138	37-38	17
1966	California halibut	72332	18287	138	37-38	17
1966	Market crab	14482	5348	138	37-38	17
1966	All other	47926	3647	138	37-38	17
1967	Salmon	168077	94357	144	35-36	17
1967	California halibut	98492	24491	144	35-36	17
1967	Market crab	58188	16618	144	35-36	17
1967	All other	74874	6774	144	35-36	17
1968	Salmon	243861	154036	149	35-36	17
1968	Market crab	115149	38970	149	35-36	17
1968	California halibut	78235	18511	149	35-36	17
1968	All other	57592	6853	149	35-36	17
1969	Salmon	150805	97705	153	35-36	17
1969	Market crab	42266	16542	153	35-36	17
1969	California halibut	33718	8594	153	35-36	17
1969	Abalone	13280	4669	153	35-36	17
1969	All other	41008	3250	153	35-36	17

Value of Landings and Shipments for Princeton, 1945-1976						
Year	Species	Weight	Value	Fish & Game Bulletin No.	Page(s)	Table
1969	Rockfish	21482	1918	153	35-36	17
1969	Shark	26171	1286	153	35-36	17
1969	Sanddab	13865	1276	153	35-36	17
1969	Petrale sole	7850	1150	153	35-36	17
1970	Salmon	273863	223816	154	38-39	17
1970	Market crab	76358	26434	154	38-39	17
1970	Abalone	21689	8589	154	38-39	17
1970	California halibut	9374	2545	154	38-39	17
1970	All other	20274	1849	154	38-39	17
1970	Whitebait smelt	11062	1491	154	38-39	17
1970	Rockfish	17987	1457	154	38-39	17
1970	Petrale sole	7445	1124	154	38-39	17
1971	Salmon	336,482	245,883	159	37-38	17
1971	Market crab	43,909	17,590	159	37-38	17
1971	California halibut	39,959	11,652	159	37-38	17
1971	Abalone	24,949	10,536	159	37-38	17
1971	All other	46,301	3,996	159	37-38	17
1971	Rockfish	24,129	2,039	159	37-38	17
1971	Lingcod	12,524	1,037	159	37-38	17
1971	Petrale sole	23,870	3,900	159	37-38	17
1972	Salmon	458820	377512	161	37-38	17
1972	Albacore	199427	63950	161	37-38	17
1972	Dungeness crab	55805	38080	161	37-38	17
1972	California	53296	18044	161	37-38	17
1972	Abalone	33098	15420	161	37-38	17
1972	Rockfish	28133	2538	161	37-38	17
1972	Shark	42359	2218	161	37-38	17
1972	All other	12543	1408	161	37-38	17
1972	Whitebait smelt	9270	1310	161	37-38	17
1972	Flounder	17411	1292	161	37-38	17
1973	Salmon	772321	801229	163	37-38	17
1973	Dungeness crab	86708	83059	163	37-38	17
1973	Abalone	21715	11892	163	37-38	17
1973	California halibut	13035	6404	163	37-38	17
1973	Rockfish	58576	5775	163	37-38	17
1973	All other	31011	2941	163	37-38	17
1974	Salmon	567109	580473	166	37-38	17
1974	Dungeness crab	77912	71889	166	37-38	17
1974	Abalone	40043	29768	166	37-38	17
1974	California halibut	23111	12598	166	37-38	17
1974	Albacore	35451	12355	166	37-38	17
1974	Rockfish	50084	7008	166	37-38	17
1974	Shark	34299	3104	166	37-38	17
1974	All other	19506	2944	166	37-38	17
1974	Sea urchin	35600	2407	166	37-38	17
1974	English sole	5186	1007	166	37-38	17
1975	Salmon	343820	368595	168	39-40	17
1975	Dungeness crab	87605	85337	168	39-40	17
1975	Abalone	50857	44137	168	39-40	17
1975	California halibut	21376	12874	168	39-40	17
1975	Rockfish	38217	6391	168	39-40	17
1975	Albacore	13746	4348	168	39-40	17
1975	All other	15481	3170	168	39-40	17
1975	English sole	15310	3121	168	39-40	17
1975	Shark	28804	2866	168	39-40	17
1975	Flounder	14125	1593	168	39-40	17
1975	Lingcod	8931	1105	168	39-40	17
1976	Salmon	185662	269293	170	39-40	17
1976	Albacore	274077	125754	170	39-40	17
1976	Dungeness crab	150438	122695	170	39-40	17
1976	Abalone	62953	70590	170	39-40	17
1976	California halibut	22021	16733	170	39-40	17
1976	Rockfish	54367	10593	170	39-40	17
1976	English sole	48326	10361	170	39-40	17
1976	Shark	43983	5627	170	39-40	17
1976	Northern anchovy	57750	4913	170	39-40	17

Value of Landings and Shipments for Princeton, 1945-1976						
Year	Species	Weight	Value	Fish & Game Bulletin No.	Page(s)	Table
1976	Sanddab	22530	4771	170	39-40	17
1976	Sea urchin	19942	3968	170	39-40	17
1976	Petrale sole	14103	3869	170	39-40	17
1976	Lingcod	23301	3343	170	39-40	17
1976	Dover sole	21524	2993	170	39-40	17
1976	All other	20188	2706	170	39-40	17
1976	Flounder	18805	2303	170	39-40	17
1976	Sand sole	6035	1460	170	39-40	17
1976	Rex sole	5460	1167	170	39-40	17
1976	White seabass	991	1023	170	39-40	17

Table 10: California Restricted Access Programs Through 2000. Source: California Department of Fish and Game License Branch Statistics. (Leet, et al. 2001:74)

Permit	Year Begun	# Permits – First Year	# Permits – 2000
Abalone Diver	1977		
Salmon Vessel	1979/1983	5964	1704
Drift Gillnet	1984	226	126
General Gill/Trammel Net	1985	1052	223
Sea Cucumber Trawl	1986	36	30
Herring Gillnet (Resident)	1986	339	335
Herring Gillnet (Nonresident)	1986	76	121
Sea Urchin Diver	1989	915	407
Pink Shirimp	1994	307	101
Dungeness Crab (Resident)	1995	614	589
Dungeness Crab (Nonresident)	1995	67	69
Finfish Trap	1996	316	142
Lobster Operator	1996	298	251
Sea Cucumber Diver	1997	111	101
Market Squid Vessel	1998	242	198
Market Squid Light Boat	1998	53	49
Nearshore Fishery	1999	1130	1026

Table 11. Landings and revenues in Half Moon Bay, 1981-2003 (Scholz, et al. 2006:73).

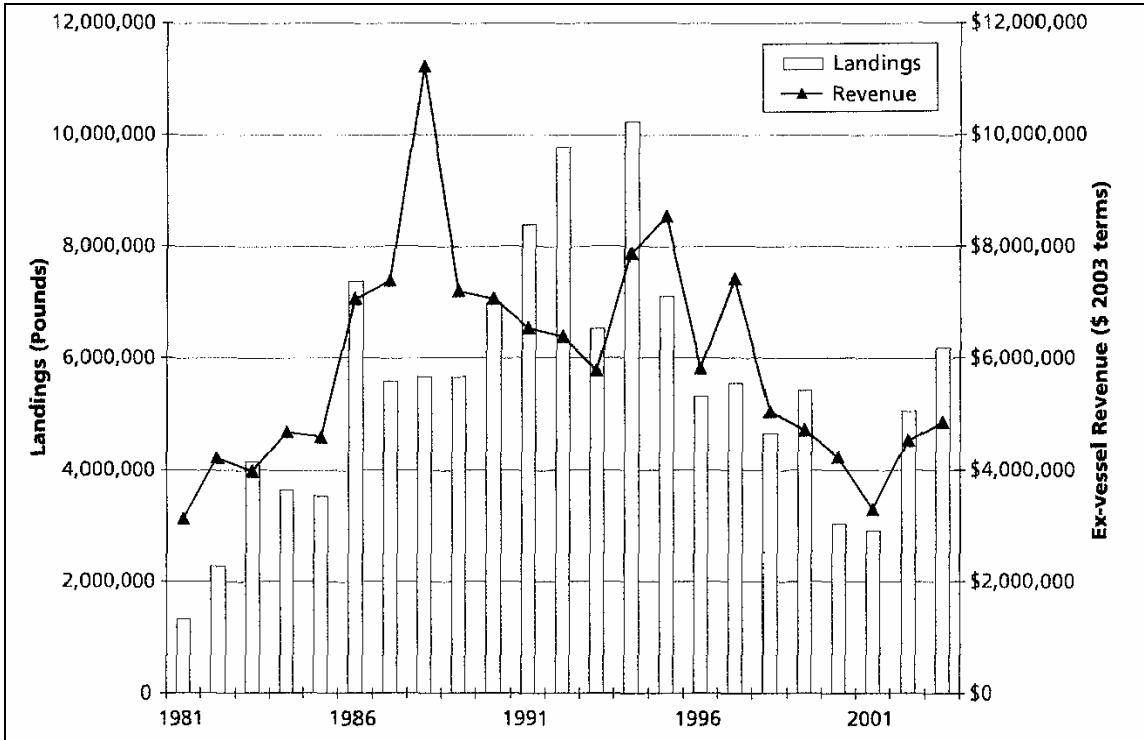


Table 12. Vessels making landings in Half Moon Bay, 1981-2003 (Scholz, et al. 2006:73).

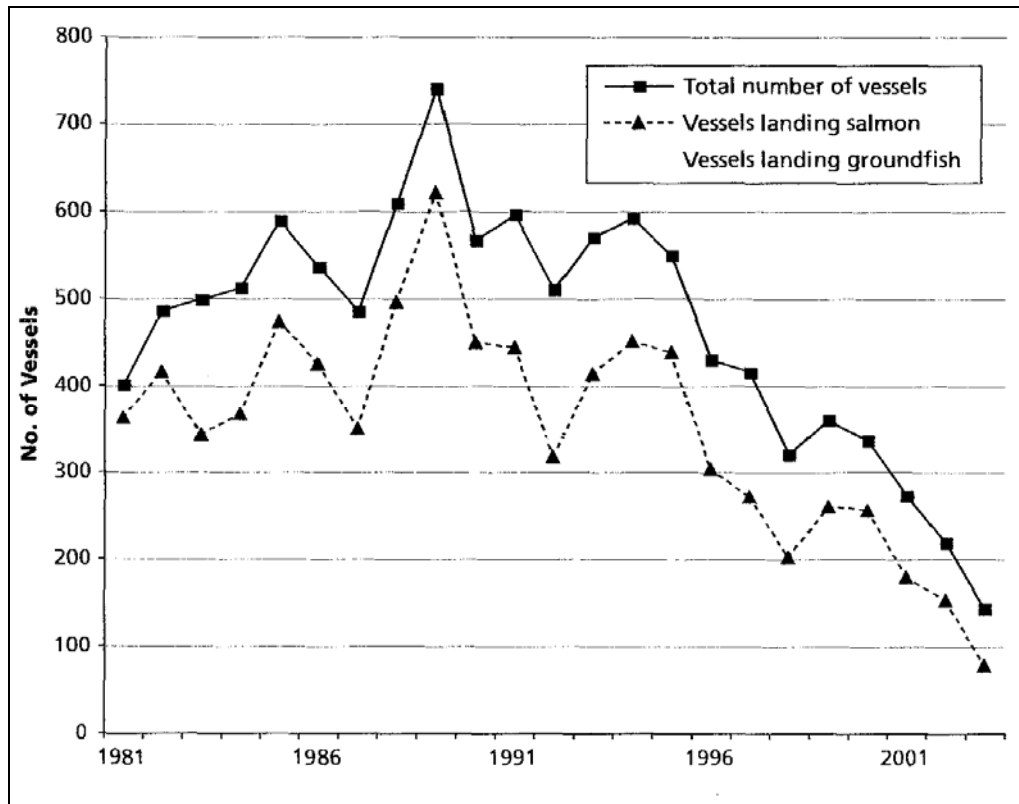


Table 13: 2006-2007 California Commercial Fishing License, Permit, and Stamp Fees. (From: <http://www.dfg.ca.gov/licensing/pdffiles/2006CommercialDigestFees.pdf>, accessed May 14, 2006.)

2006-2007 LICENSE, PERMIT, AND STAMP FEES	
COMMERCIAL FISHING LICENSES, REGISTRATIONS AND STAMPS	
Resident Commercial Fishing License	\$101.50
Nonresident Commercial Fishing License	304.00
Commercial Fishing Salmon Stamp	147.50
"John Doe" Commercial Fishing Salmon Stamp	147.50
Commercial Ocean Enhancement Stamp	37.25
Commercial Boat Registration (Resident)	266.50
Commercial Boat Registration (Nonresident).....	799.75
Commercial Aircraft Registration	213.25
Commercial Passenger Fishing Vessel License	266.50
NONRESTRICTIVE PERMITS	
Anchovy Take	32.00
Bay Shrimp	32.00
Coonstripe Shrimp Trap Vessel	80.00
Crayfish	32.00
Ghost Shrimp	32.00
Golden and Ridgeback Prawn Trawl	32.00
Herring Fresh Fish Market	32.00
Herring Ocean Waters	32.00
Inland or Freshwater Fish	32.00
Land California-Caught Fish Outside California Waters	16.00
Lobster Crewmember	133.50
Marine Aquaria Collector	352.00
Northern Rock Crab Trap	262.75
Sea Urchin Crewmember	32.00
Southern Pink Shrimp Trawl	32.00
Swordfish	352.00
Tidal Invertebrate	32.00
Transit of Recreational Fishing Vessel thru Closed Areas	
Annual	32.00
30 days or less	8.00
Trap	37.25
TRANSFER FEES	
Drift Gill Net (permit)	1,500.00
Drift Gill Net (vessel)	130.00
Dungeness Crab (T/NT).....	200.00
General Gill	100.00
Lobster Operator (permit).....	500.00
Market Squid Transfer Fee	500.00
Market Squid Brail Upgrade	1,500.00
Nearshore Fishery (permit)	500.00
Nearshore Fishery (trap endorsement)	75.00
Northern Pink Shrimp Trawl Vessel (new owner)	1,000.00
Northern Pink Shrimp Trawl Vessel (same owner)	200.00
Northern Pink Shrimp Trawl Vessel (temporary)	100.00
Salmon Vessel	200.00
Sea Cucumber (Dive or Trawl).....	250.00
Spot Prawn Trap Vessel (new owner).....	50.00
Spot Prawn Trap Vessel (same owner)	200.00
LIMITED ENTRY AND RESTRICTED ACCESS PERMITS	
Deeper Nearshore Species Fishery Permit	133.50
Drift Gill Net (Shark and Swordfish)	352.00
Dungeness Crab Vessel (Resident)	213.25
Dungeness Crab Vessel (Nonresident)	426.50
General Gill/Trammel Net	352.00
Herring Gill Net (Resident)	282.50
Herring Gill Net (Nonresident)	1,066.25
Herring Stamp	106.75
Lobster Operator	282.50
Market Squid Vessel (Transferable)	2,101.25
Market Squid Vessel (Nontransferable)	1,050.50
Market Squid Brail (Transferable)	2,101.25
Market Squid Brail (Nontransferable)	1,050.50
Market Squid Light Boat (Transferable)	630.25
Nearshore Fishery Permits	
North Coast Region (Transferable/Nontransferable)	533.25
North-Central Coast Region (Transferable/Nontransferable) ..	533.25
South-Central Coast Region (Transferable/Nontransferable) ..	533.25
South Coast Region (Transferable/Nontransferable)	533.25
Nearshore Fishery Trap Endorsements	
North-Central Coast Region (Transferable/Nontransferable) ..	80.00
South-Central Coast Region (Transferable/Nontransferable) ..	80.00
South Coast Region (Transferable/Nontransferable)	80.00
Nearshore Fishery Bycatch Permit	213.25
Northern Pink Shrimp Trawl Vessel (Transferable)	1,066.25
Northern Pink Shrimp Trawl Vessel (Nontransferable)	533.25
Salmon Vessel	32.00
Sea Cucumber Diving	266.50
Sea Cucumber Trawl	266.50
Sea Urchin Diving	352.00
Southern Rock Crab Trap	262.75
Spot Prawn Trap Vessel - Tier 1	266.50
Spot Prawn Trap Vessel - Tier 2	266.50
Spot Prawn Trap Vessel - Tier 3	1,066.25
LATE FEES	
Commercial Limited Entry Late Fee	50.00
Salmon Vessel Late Fee	100.00
Market Squid Late Fee	250.00
TANNER CRAB TRAP VESSEL PERMIT	
At time of publication, the Fish and Game Commission adopted regulations for the Tanner Crab Trap Vessel Permit Fishery. The regulations have not been approved by the Office of Administrative Law. If approved, the fee would be as follows:	
Tanner Crab Trap Vessel	10,000.00

Table 14: Pacific Coast sardine landings in tons, 1916-1968 (June to May). (Radovich 1982:58)

Season	Pacific Northwest				California							Grand Total
	British Columbia	Washington	Oregon	Total	Northern California			Southern California	Total California	Baja California		
					Reduction Ships	San Francisco	Monterey					
1916-1917	—	—	—	—	—	—	7,710	7,710	19,820	27,530	—	27,530
1917-1918	80	—	—	80	—	70	23,810	23,880	48,700	72,580	—	72,660
1918-1919	3,640	—	—	3,640	—	450	35,750	36,200	39,340	75,540	—	79,180
1919-1920	3,280	—	—	3,280	—	1,000	43,040	44,040	22,990	67,030	—	70,310
1920-1921	4,400	—	—	4,400	—	230	24,960	25,190	13,260	38,450	—	42,850
1921-1922	990	—	—	990	—	80	16,290	16,370	20,130	36,500	—	37,490
1922-1923	1,020	—	—	1,020	—	110	29,210	29,320	35,790	65,110	—	66,130
1923-1924	970	—	—	970	—	190	45,920	46,110	37,820	83,930	—	84,900
1924-1925	1,370	—	—	1,370	—	560	67,310	67,870	105,150	173,020	—	174,390
1925-1926	15,950	—	—	15,950	—	560	69,010	69,570	67,700	137,270	—	153,220
1926-1927	48,500	—	—	48,500	—	3,520	81,860	85,380	66,830	152,210	—	200,710
1927-1928	68,430	—	—	68,430	—	16,690	98,020	114,710	72,550	187,260	—	255,690
1928-1929	80,510	—	—	80,510	—	13,520	120,290	133,810	120,670	254,480	—	334,990
1929-1930	86,340	—	—	86,340	—	21,960	160,050	182,010	143,160	325,170	—	411,510
1930-1931	75,070	—	—	75,070	10,960	25,970	109,620	146,550	38,570	185,120	—	260,190
1931-1932	73,600	—	—	73,600	31,040	21,607	69,078	121,725	42,920	164,645	—	238,245
1932-1933	44,350	—	—	44,350	58,790	18,634	89,599	167,023	83,667	250,690	—	295,040
1933-1934	4,050	—	—	4,050	67,820	36,336	152,480	256,636	126,793	383,429	—	387,479
1934-1935	43,000	—	—	43,000	112,040	68,477	230,854	411,371	183,683	595,054	—	638,054
1935-1936	45,320	10	26,230	71,560	150,830	76,147	184,470	411,447	149,051	560,498	—	632,058
1936-1937	44,450	6,560	14,200	65,210	235,610	141,099	206,706	583,415	142,709	726,124	—	791,334
1937-1938	48,080	17,100	16,660	81,840	67,580	133,718	104,936	306,234	110,330	416,564	—	498,404
1938-1939	51,770	26,480	17,020	95,270	43,890	201,200	180,994	426,084	149,203	575,287	—	670,557
1939-1940	5,520	17,760	22,330	45,610	—	212,453	227,874	440,327	96,939	537,266	—	582,876
1940-1941	28,770	810	3,160	32,740	—	118,092	165,698	283,790	176,794	460,584	—	493,324
1941-1942	60,050	17,100	15,850	93,000	—	186,589	250,287	436,876	150,497	587,373	—	680,373
1942-1943	65,880	580	1,950	68,410	—	115,884	184,399	300,283	204,378	504,661	—	573,071
1943-1944	88,740	10,440	1,820	101,000	—	126,512	213,616	340,128	138,001	478,129	—	579,129
1944-1945	59,120	20	—	59,140	—	136,598	237,246	373,844	181,061	554,905	—	614,045
1945-1946	34,300	2,310	90	36,700	—	84,103	145,519	229,622	174,061	403,683	—	440,383
1946-1947	3,990	6,140	3,960	14,090	—	2,869	31,391	34,260	199,542	233,802	—	247,892
1947-1948	490	1,360	6,930	8,780	—	94	17,630	17,724	103,617	121,341	—	130,121
1948-1949	—	50	5,320	5,370	—	112	47,862	47,974	135,752	183,726	—	189,096
1949-1950	—	—	—	—	—	17,442	131,769	149,211	189,714	338,925	—	338,925
1950-1951	—	—	—	—	—	12,727	33,699	46,426	306,662	353,088	—	353,088
1951-1952	—	—	—	—	—	82	15,897	15,979	113,125	129,104	16,184	145,288
1952-1953	—	—	—	—	—	—	49	49	5,662	5,711	9,162	14,873
1953-1954	—	—	—	—	—	—	58	58	4,434	4,492	14,306	18,798
1954-1955	—	—	—	—	—	—	856	856	67,609	68,465	12,440	80,905
1955-1956	—	—	—	—	—	—	518	518	73,943	74,461	4,207	78,668
1956-1957	—	—	—	—	—	—	63	63	33,580	33,643	13,655	47,298
1957-1958	—	—	—	—	—	—	17	17	22,255	22,272	9,924	32,196
1958-1959	—	—	—	—	—	—	24,701	24,701	79,270	103,971	22,334	126,305
1959-1960	—	—	—	—	—	—	16,109	16,109	21,147	37,256	21,446	58,702
1960-1961	—	—	—	—	—	—	2,340	2,340	26,538	28,878	19,899	48,777
1961-1962	—	—	—	—	—	—	2,231	2,231	23,297	25,528	21,270	46,798
1962-1963	—	—	—	—	—	—	1,211	1,211	2,961	4,172	14,620	18,792
1963-1964	—	—	—	—	—	—	1,015	1,015	1,927	2,942	18,384	21,326
1964-1965	—	—	—	—	—	—	308	308	5,795	6,103	27,120	33,223
1965-1966	—	—	—	—	—	—	151	151	568	719	22,247	22,966
1966-1967	—	—	—	—	—	—	23	23	321	344	19,531	19,875
1967-1968	—	—	—	—	—	—	—	—	71	71	27,657	27,728

*British Columbia data were supplied by the Canadian Bureau of Statistics and the province of British Columbia; Washington data by the Washington Department of Fisheries; and Oregon data by the Fish Commission of Oregon. Deliveries to reduction ships and data for Baja California were compiled by the United States Fish and Wildlife Service from records of companies receiving fish. California landings were derived from records of the California Department of Fish and Game.

*Prior to the 1931-1932 season, fish landed in Santa Barbara and San Luis Obispo Counties are included in southern California. Subsequent landings north of Point Arguello are included in Monterey and those south of Point Arguello are included in southern California.

*The amount of sardines landed in Baja California prior to the 1951-1952 season is not known.

FISHING AT PILLAR POINT - IMAGES



Figure 42: During World War II, women were put to work on the newly developing fillet production lines. (from <http://www.nefsc.noaa.gov/history/timeline/1940.html>, accessed May 15, 2006)



Figure 45. Fishing boats anchored in Pillar Point Harbor, pre-construction of marina. (McDowell 1975:112)



Figure 43: The abandoned fish-buying facility at the end of the 1940s-era Romeo Pier. Photo by Barbara Stickel, May 2, 2006.



Figure 46. Trolling in Half Moon Bay (Alexander 1916:110).



Figure 44: The sardine factory at Princeton was refitted for canning brussel sprouts. Photo Courtesy San Mateo County Historical Museum (Svanevik and Burgett, 1992).



Figure 47: The facilities found at the end of Johnson's Pier in Pillar Point house three wholesale fish buyers. Photo by Barbara Stickel, May 2, 2006.

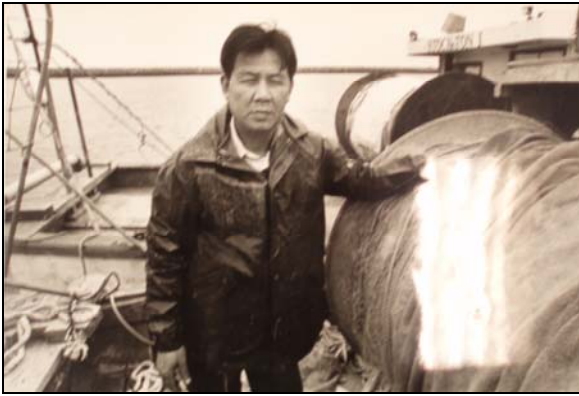


Figure 48: Vietnamese Fisherman Nui Nguyen on his boat, Anh Taun, June 19, 1985. Photo by Norbert Von Der Groeben, courtesy San Mateo County Historical Association



Figure 51: Pillar Point fishermen have capitalized on their nearness to Bay Area consumers, and today their catch is often marketed directly from the boats. (from http://static.flickr.com/1/162335_40c9f89ae3_m.jpg, accessed May 15, 2006)



Figure 49: Vietnamese American fisherman displays Dungeness crab catch. (Photo Lawrence Migdale/ Photo Researchers, Inc.) (MSN Encarta)

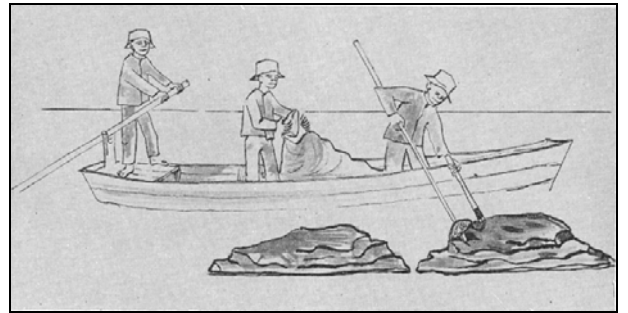


Figure 52: Chinese fishermen gathering abalones off California in the early 1800's. Abalones were knocked off rocks by a wedge on the end of a pole and drawn up with a gaff. Brush drawing by R. B. Lucas, 1961 (Cox 1962:76).



Figure 50: Fishing boats at Pillar Point Harbor. (from http://www.california-travels.com/html/pillar_point.html, accessed May 15, 2006)

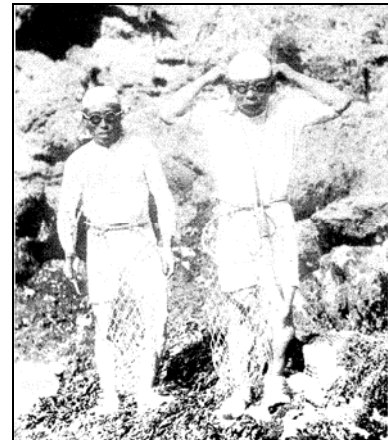


Figure 53: Japanese abalone divers, ca 1897. Divers quickly realized the traditional diving costume shown was not suitable for the cold California waters. Photo from Pat Hathaway Collection. (Lydon 1997:25)

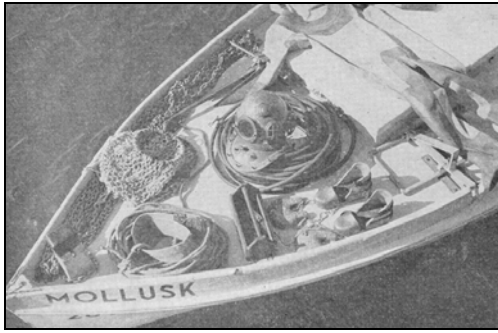


Figure 54: Gear used by hard-hat abalone divers in the abalone fishery. Helmet is of Japanese manufacture, weights and shoes are often cast by the divers themselves, suit of canvas and rubber. Photo by Verne Peckham, 1961 (Cox 1962:78).

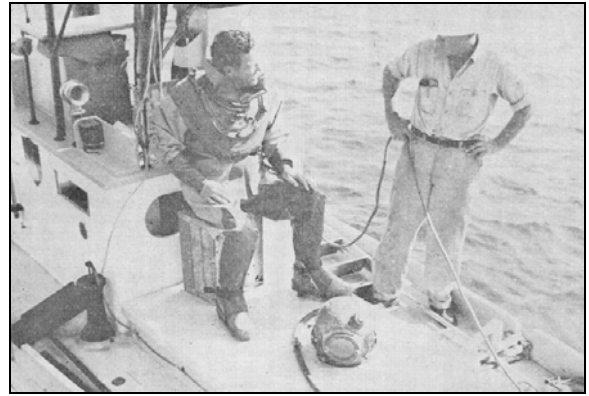


Figure 57: Driver dressed except for weights and helmet; ready to descent. Photo by Verne Peckham, 1961 (Cox 1962:78).

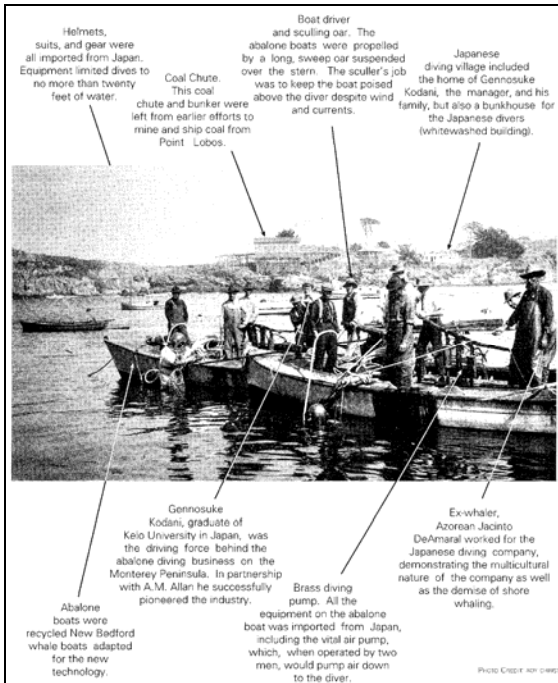


Figure 55: Dive crew, ca 1905. Photo courtesy Roy Christian. (Lydon 1997:36)



Figure 58: In some instances, commercial abalone divers worked near reefs, making diving a rugged business. Photo by D. H. Fry, Jr., 1952 (Cox 1962:81)

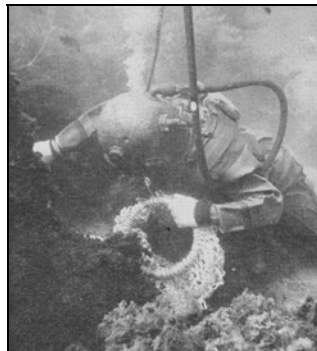


Figure 56: Diver in hard-hat gear gathering abalones. Woven basket holds 25-30 red abalone. Photo by Glen Bickford, 1957 (Cox 1962:82).



Figure 59: Unloading red abalones from a diving boat at the processor's dock. The diving helmet on the foredeck has been equipped with an extra-wide face plate. Photo by Verne Peckham, 1961 (Cox 1962:91)



Figure 60: Modern abalone diver w/bag of abalone. (from <http://www.foodadelaide.com/members/seafood/ozsouthern.htm>, accessed May 15, 2006)



Figure 63: Sardine cannery line ca 1940. (From <http://www.mtycounty.com/pgs-misc/cannery-row.html>, accessed May 15, 2006)



Figure 61. Partial Map showing Catch Localities of Sardines landed at Los Angeles and Monterey Harbors 1928-1936 (Clark 1937:6).



Figure 64: Charlie Romeo with the Romeo Packing Company's 1940-s era sardine can label. Photo by Barbara Stickel, April 26, 2006.



Figure 62: In 1944, the War Manpower Commission encouraged employers to “to adapt more fishing jobs to the employment of women ... women can do much of the work in fish processing plants that formerly was considered for men only.” (from <http://www.nefsc.noaa.gov/history/timeline/1940.html>, accessed May 15, 2006)



Figure 65: Romeo Packing Company label with original "Charlie the Tuna." Photo by Barbara Stickel, April 26, 2006.

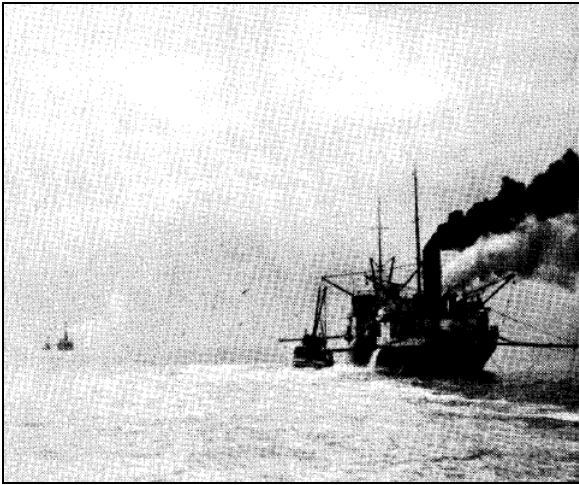


Figure 66: Purse seiner unloading to reduction vessel Polarine; two other reduction ships shown in distance. (Radovich 1982:62)

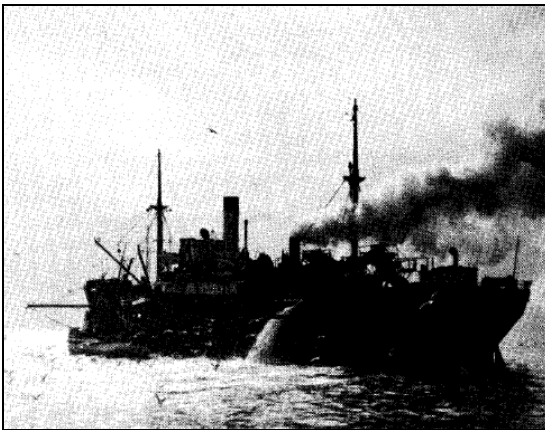


Figure 67: Purse seine vessel unloading to the Lake Miraflores ca 1931. (Radovich 1982:61)



Figure 68: Once again sardines are being unloaded in Princeton. (from <http://www.travellady.com/Issues/September05/1878MoonStruck.htm>, accessed May 15, 2006)



Figure 69: The Merva W., owned and operated by second-generation Pillar Point fisherman Michael McHenry, is used to seine anchovies, sardines and squid, as well as to fish for Dungeness crab and salmon. Photo by Barbara Stickel, May 2, 2006.

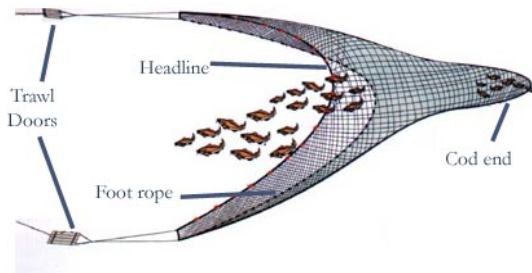


Figure 70: Otter trawl. (From <http://en.wikipedia.org/wiki/Image:Benthictrawl.jpg>, accessed May 15, 2006).



Figure 71: Owned and operated by Pillar Point commercial fisherman and buyer Larry Fortado, the small trawl vessel Phyllis J. is shown here with the net partially suspended from the boom, possibly undergoing repairs. Photo by Barbara Stickel, May 2, 2006.

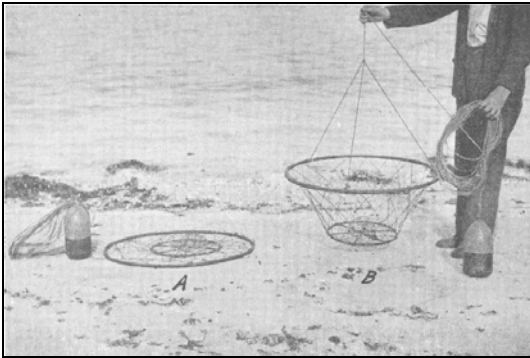


Figure 72: Crab hoop net. The trap on the left is collapsed, as it is when on the bottom of the ocean. That on the right is extended, as it is while being hauled quickly to the surface. Photograph by J. B. Phillips, May, 1934 (Phillips 1949:153).



Figure 75: Monterey clipper-style salmon troll vessel Lazy D., headed home to Pillar Point Harbor. Photo by Barbara Stickel, 1991.



Figure 73: Dungeness crab traps stacked and ready for the season to open. (Parr 2004)



Figure 76: Three salmon gurdies mounted on a single shaft. There is a second set of three on the other side of the boat. The lines are stainless steel. Note the three lead weights at the right. Photo by D. H. Fry, Jr., 1949 (Fry 1949:42).



Figure 74: Crabbers work late into the night preparing for the upcoming season opener. (Parr 2004)



Figure 77: Having used his hydraulic salmon gurdies to bring the fish to the surface, commercial fisherman Tom Stickel must now hand pull the last 15-18 feet of monofilament in order to land a Chinook salmon. Photo by Barbara Stickel.



Figure 78. The San Mateo County coast is known for its great salmon fishing, and Barbara Stickel is shown here enjoying the same. Photo by Tom Stickel June 20, 2004.



Figure 79. J. F. Wiencke, the founder of Moss Beach, enjoyed the area's bounty. Photo courtesy Spanish Town Historical Society. (Smookler 2004).



Figure 80: Abalone was served at many local restaurants and shells were often used for decorations. This ca 1935 photo shows Gus Pope and Marie Kullander at the Montara Inn. Photo courtesy J. P. Ruschmeyer (Smookler 2005:75).

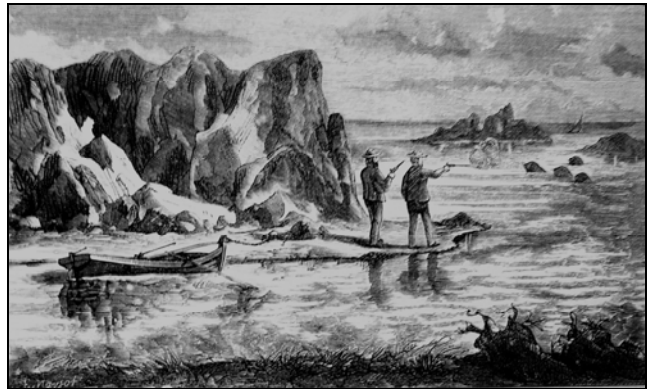


Figure 81. Before attempting fishing, early sportsmen would first clear the area of sea lions. (Evans, 1889).



Figure 82. Charter boat fishing from Pillar Point has always been popular. (McDowell 1975:113)

APPENDIX D: COMMERCIAL FISHING GEARS USED AT PILLAR POINT HARBOR

Over the years, Pillar Point's commercial fishing community has used a wide assortment of fishing gears; in many instances slightly modified versions of those gears are still in use today. Commercial fisheries and the fishermen that participate in those fisheries are generally grouped according to gears and species. The primary types of gear used today by fishermen from Pillar Point include hook-and-line gear (troll gear, for salmon and stationery gear for rockfish), traps (for Dungeness crab and sablefish), trawl nets and seines (Starr, Cope & Kerr 2001:15), illustrations of which follow.

Trap Fisheries -- Dungeness Crab



Figure 83. Dungeness crab. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003e).

To participate in today's California Dungeness crab fishery, a commercial fisherman must hold a limited entry permit, issued by the State of California. To enter the fishery, a new fisherman must purchase a pre-existing permit from another participant. Additionally, only male crabs may be harvested and there are also size and seasonal restrictions. The minimum size limit generally ensures that the crab is at least four years old and has had more than one opportunity to reproduce prior to being harvested. Dungeness crabs can live for up to ten years, and the population fluctuates with ocean conditions (Goblirsch & Theberge 2003e).

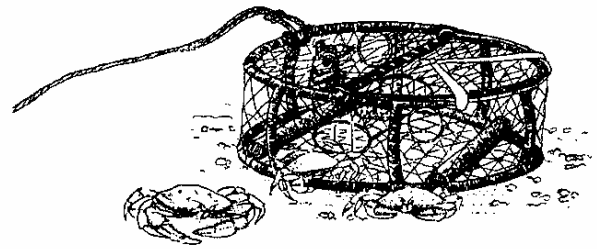


Figure 84: Dungeness crab trap, rigged for fishing. Drawing by Herb Goblirsch. (Goblirsch & Theberge 2003e)

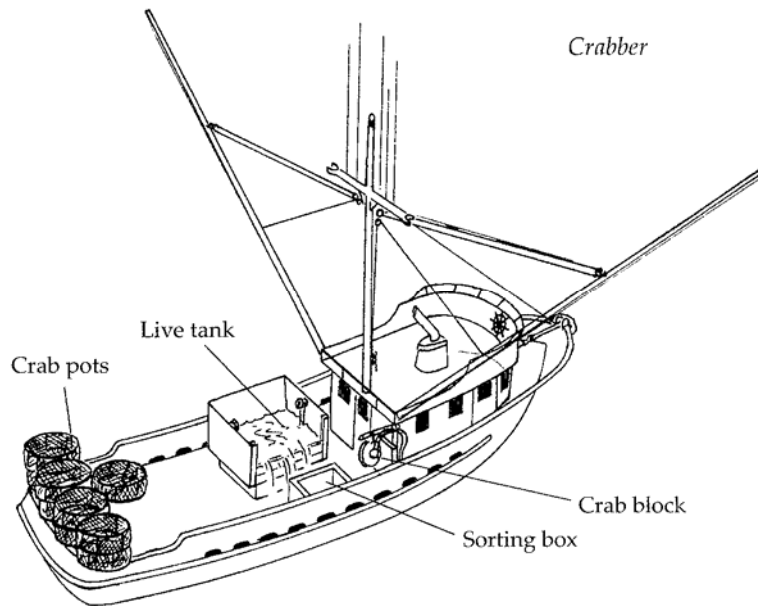


Figure 85: Commercial fishing vessel rigged for crab fishing. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003e; Leet, et al. 2001:579).

Commercial fishermen throughout California utilize the same type of gear, circular traps made of rubber-wrapped steel, measuring about four feet in diameter, and weighing between 60 and 120 pounds. State regulations require openings that allow immature crabs to escape, and also require that traps have a device that will rot away if the trap is lost, so that crabs may escape. Traps are set individually, buoyed off and left to soak, generally one to three days, although soak time depends on fishing and weather conditions. Dungeness crab is generally fished at depths of between 20 and 80 fathoms (1 fathom = 6 feet) (Leet, et al. 2001:108).

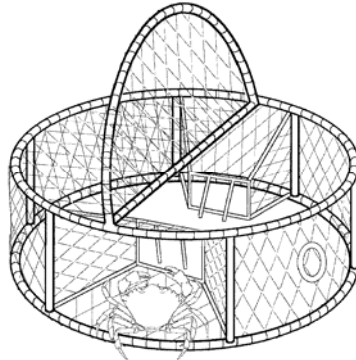


Figure 86: Commercial Crab Trap (Starr, Cope & Kerr 2001:15).



Figure 87: Crab buoy. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003e).

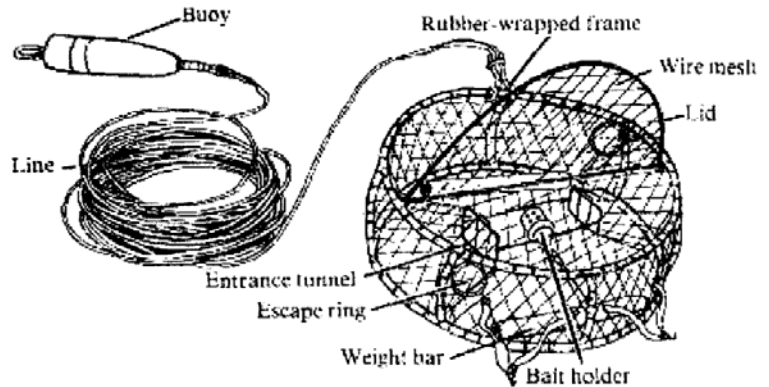


Figure 88: Dungeness crab trap, rigged for fishing. Drawing: Ginny Goblirsch (Leet, et al. 2001:579).

Trap Fisheries

-- Sablefish

From time to time, Pillar Point fishermen have been known to utilize fish pots, or traps, to harvest sablefish. Traditionally this fishery was reserved for larger vessels due to the amount of deck space required to handle the large fish traps (Goblirsch & Theberge 2003e). Today, at Pillar Point fishermen are working with smaller gear, with fewer traps per set, and a fishery for medium-size vessels is emerging (Interview with Tom Stickel 4/6/2006).

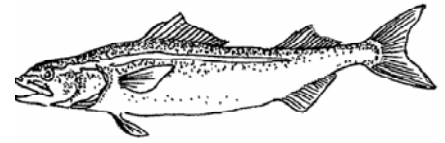


Figure 89: Sablefish (Drawing by Herb Goblirsch) (Goblirsch & Theberge 2003e).

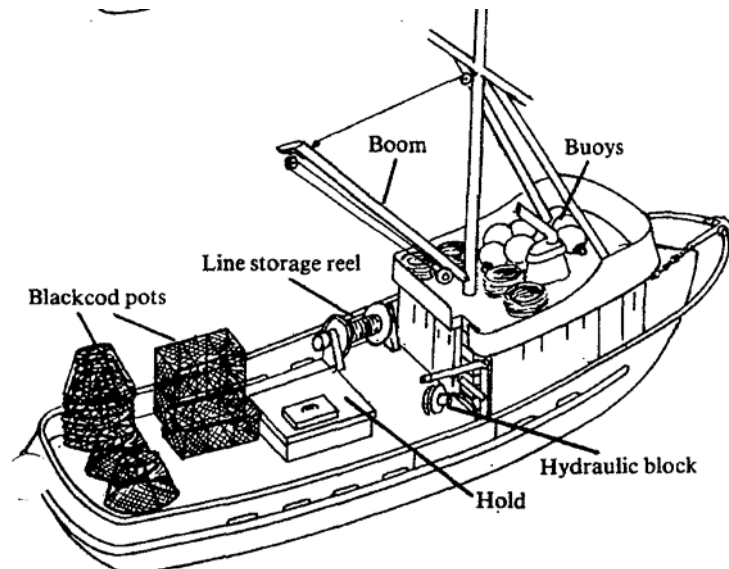


Figure 90: Longline vessel rigged for fishing fish pots. Drawing by Herb Goblirsch (Recht 2003:18).

The size and shape of the traps varies, but generally they are constructed with a collapsible portion for ease in deck stacking (Goblirsch & Theberge 2003e). Other gear necessary includes some sort of hydraulic pot hauler, a hoist for lifting the heavy traps, flagpoles and buoys. Buoy line (and ground line) is stored on reels or coiled in tubs. Squid is the bait of choice. The pots are run on a longline system, the number of pots varies, but they are attached to a line and weighted at both ends with anchors. The gear is set in 200 or more fathoms of water, and both ends are marked with flags and buoys (Goblirsch & Theberge 2003e).

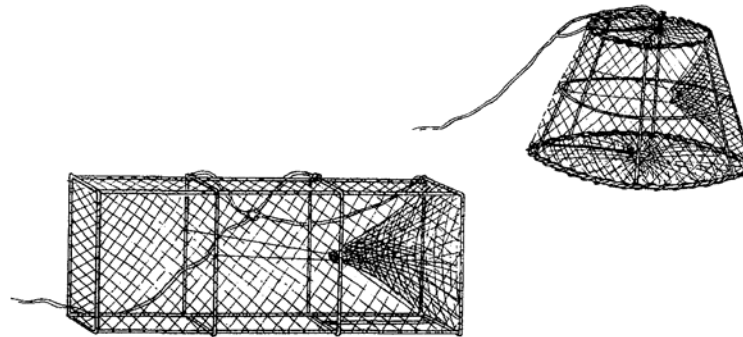


Figure 91: Sablefish Traps (Drawing by Herb Goblirsch) (Goblirsch & Theberge 2003e).

Sablefish traps are required to have a self-destruct mechanism incorporated in their construction, so that trapped fish can escape if gear is lost. Fishermen voluntarily include small openings to allow juvenile fish to escape (Goblirsch & Theberge 2003e).

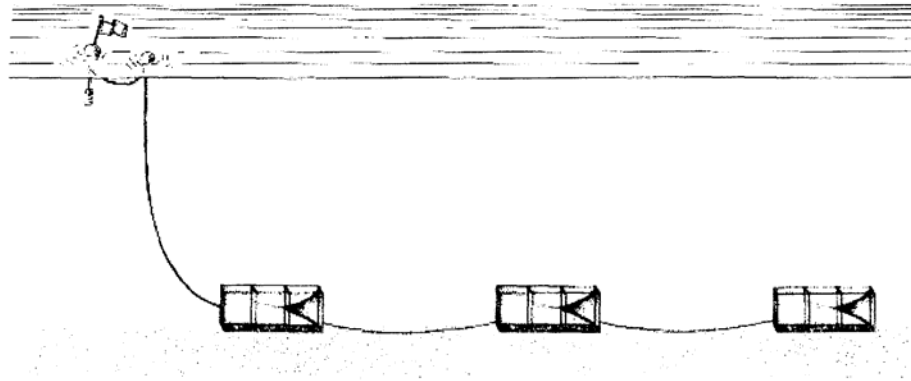


Figure 92: Typical configuration for fish trap gear (Drawing by NMFS) (Leet, et al. 2001:580).

Hook-and-Line Fisheries

There is a wide variety of commercial hook and line gear, but usually it consists of a number of baited hooks or lures, either actively fished or set and left to soak for a while. Vessel sizes range from the smallest commercial skiffs to larger longline vessels of over 60 feet in length (Starr, Cope & Kerr 2001:17). The four types of hook and line gear most commonly used by Pillar Point's fishermen are described here.

-- Longline

From time to time, some Pillar Point commercial fishermen have used longlines to fish for sablefish (black cod). Commercial longlines consist of a groundline with baited hooks attached by leaders at regular intervals. The leaders are known as gangions. When baited or ready to be baited, the hooks are hung around the rim of the tub, which keeps them from being tangled. Things such as the size and spacing of hooks and the time the gear is allowed to soak vary depending on fishing conditions (Goblirsch & Theberge 2003b). Crewmen on longline vessels spend many hours at the dock, untangling the gear and baiting hooks with squid and other types of bait.



Figure 93: Longline circle hook.
Drawing by Herb Goblirsch
(Goblirsch & Theberge 2003b).

When a longline vessel is in port, the poles, flags and surface buoys are generally stored on deck and are one means of recognizing a vessel participating in this fishery. Other distinctive features of longline vessels include the chutes and pullers used for hauling and setting the gear and tubs full of gear. Longlining is labor-intensive work, and for protection from the weather, some longline vessels have "baiting sheds" or "shelter decks" onboard, another unmistakable feature (Goblirsch & Theberge 2003b).

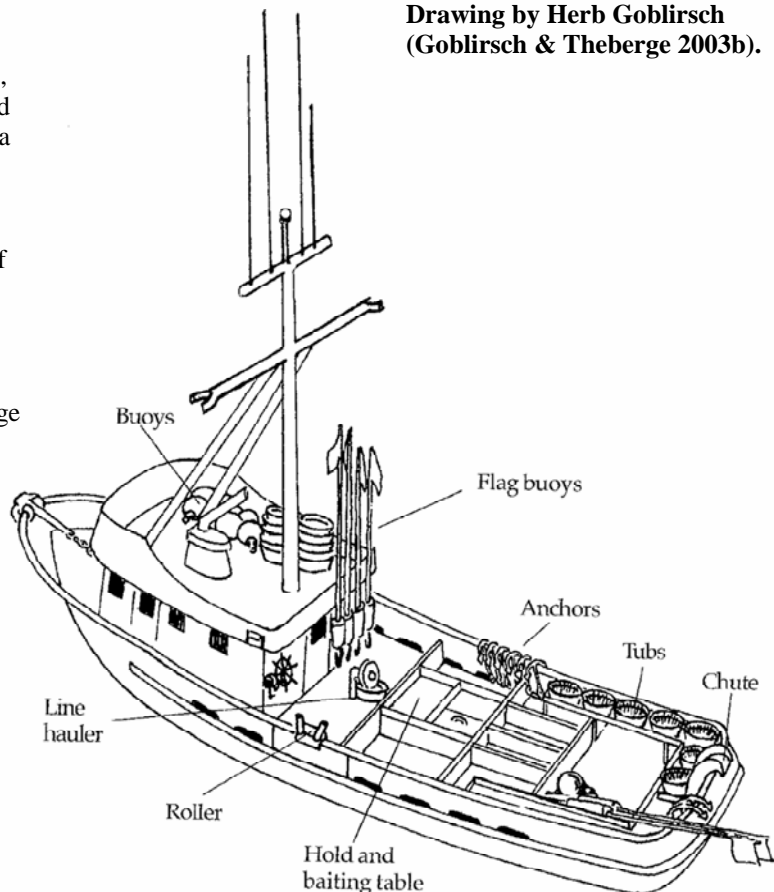


Figure 94: Commercial fishing vessel rigged for fishing groundfish with longlines. Drawing by Herb Goblirsch
(Goblirsch & Theberge 2003b).

To fish the gear, the baited longline is set by stretching it over the bottom with anchors, poles, flags and surface buoys at each end. (Baited lines, or 100-fathom “skates” are tied together and set in depths of between 100 and 400 fathoms. A sablefish groundline can stretch for over a mile, and will usually be soaked for four to six hours before the fishermen begin to retrieve it, which process can take several hours (Goblirsch & Theberge 2003b).

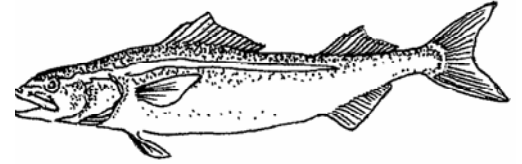


Figure 95: Sablefish. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003b).

While hauling the gear, the fishermen must pay careful attention to the fish as they come out of the water, because “sablefish are soft mouthed and can wiggle free of hooks.” The fishermen must work quickly so that bottom dwellers do not have time to prey on their catch (Goblirsch & Theberge 2003b).

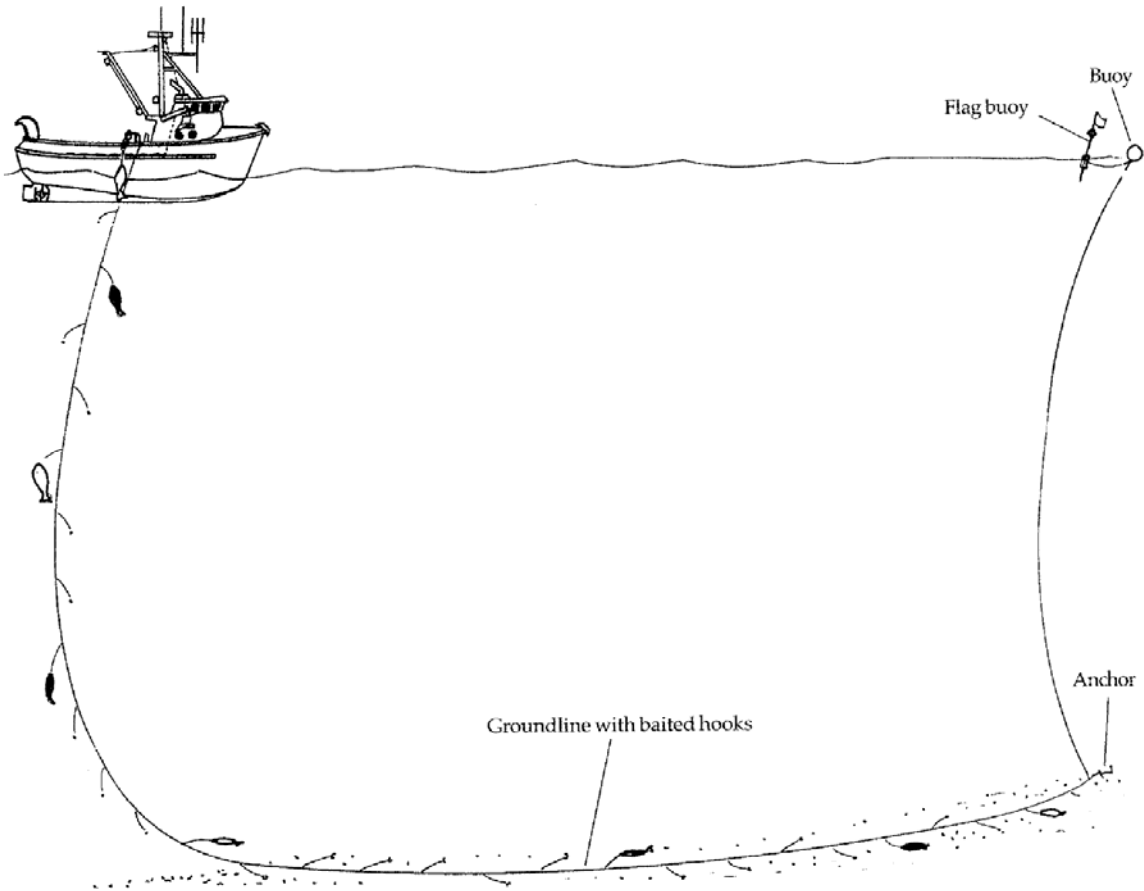


Figure 96: Vessel fishing groundfish pulling longline gear. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003b).

Hook-and-Line Fisheries

-- Vertical Gear

Another traditional fishing gear used by Pillar Point fishermen is the vertical longline, or “Portuguese-style” gear. This gear is similar to the horizontal longlines, except there is only one weight used, and the other end of the line is either attached to a buoy or kept with the vessel. The hooks, generally baited with squid, are kept vertical in the water. If the gear is kept with the boat, it drifts through the school of fish, and targets rockfish that live around pinnacles and rough bottom. On occasion, fishermen have also used a modified longline to troll for bottom-dwelling rockfish (Starr, Cope & Kerr 2001:17). The number of hooks used will vary from about 20 to 300 or so, depending on the species targeted.

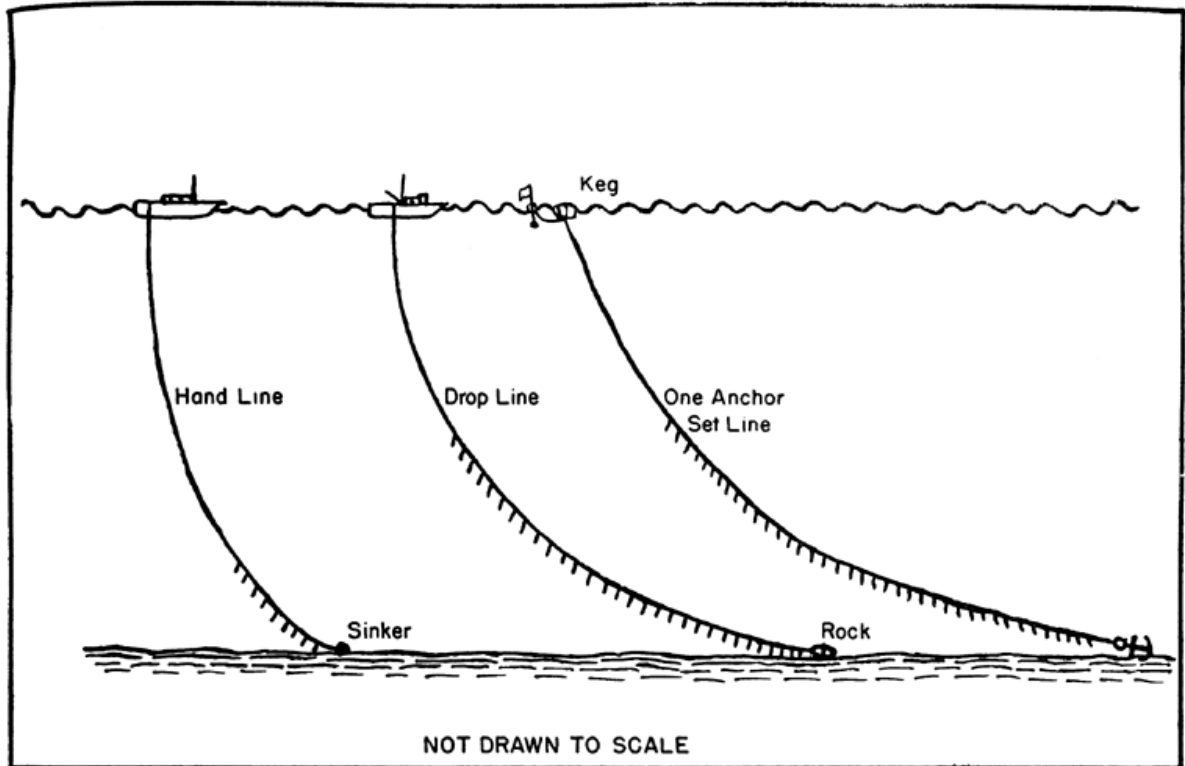


Figure 97: Evolution of the one anchor set line from the hand line and drop line. (Scofield 1947:21)

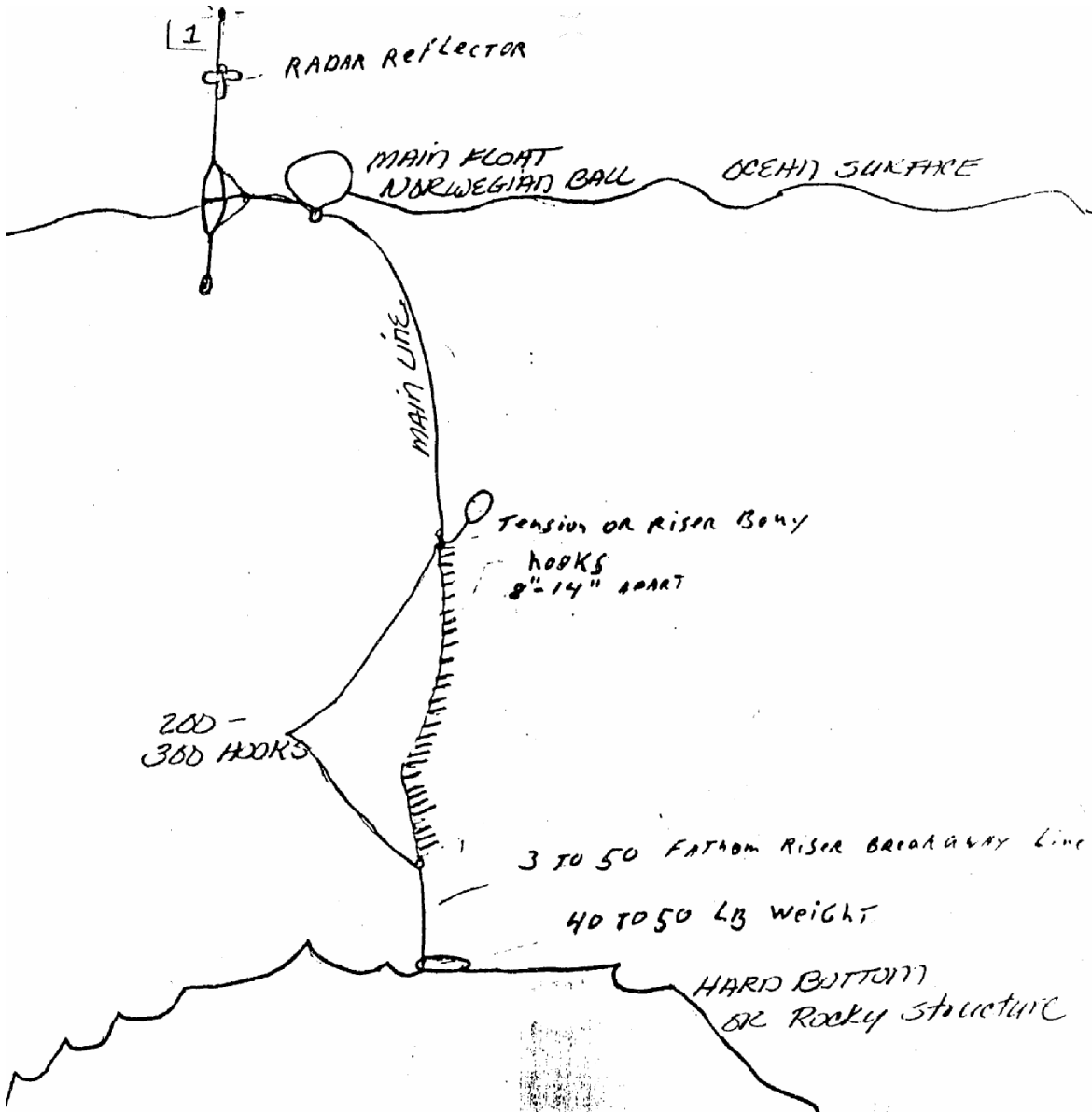


Figure 98: Standard configuration for fishing vertical ("Portugese-style") longlines (Drawing by Craig Barbre) (Barbre 1991).

-- Trolling

Trolling, described elsewhere in this document, is the third style of hook-and-line fishing practiced by Pillar Point's commercial fishermen, for both salmon and albacore. Occasionally salmon troll gear is also used to fish for rockfish (Starr, Cope & Kerr 2001:17). Historically, some commercial fishermen would also troll one line of "scampi" (lures), with a long, bar-shaped weight, targeting ling cod. This style of fishing, known as "dingle-barring," has for the most part been discontinued due to current restrictions on ling cod harvest (Interview w/Tom Stickel, 4/6/2006).

-- Rod & Reel

The traditional rod and reel, with baited hooks or lures, is used by commercial fishermen when fishing in the kelp beds (Starr, Cope & Kerr 2001:18). In order to be able to take advantage of the lucrative live-fish market, however, many commercial fishermen fishing the nearshore waters also utilize fish traps, discussed elsewhere in this appendix.

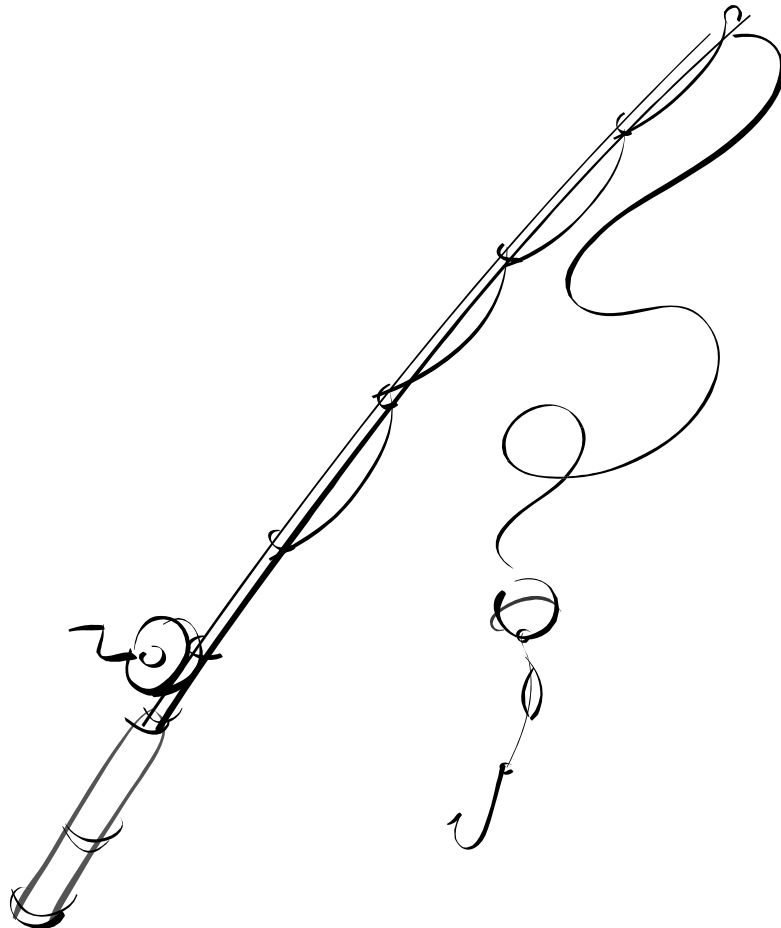


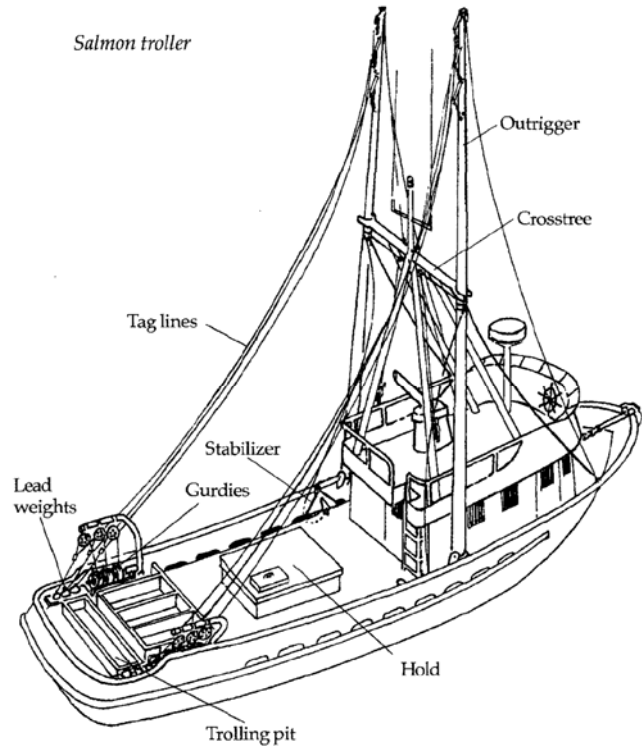
Figure 99: Microsoft Office 2003 clipart.

Troll Fishery - Salmon

Pillar Point is known as a salmon port, and its fishermen troll for fresh chinook salmon. Boats can vary in size from about 18 feet up to about 60, although the average salmon troller is in the 40-foot range. Smaller salmon trollers often return to port daily, whereas the larger vessels may stay out for three or four days (Goblirsch & Theberge 2003d).

To troll for salmon, a fisherman must tow baited hooks, or lures, through the water. Stainless wire "lines" are rigged to outriggers (trolling poles) that are generally about as long as the vessel itself. The outriggers are lowered and help hold the lines away from the boat. Often, stabilizers (flopper-stoppers) are attached to the outriggers, as well (Goblirsch & Theberge 2003d). Most salmon troll vessels have a "pit" in the stern, which allows the fisherman to be closer to the water while he works.

Figure 100: Commercial fishing vessel rigged for salmon trolling. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).



In California, trollers are allowed to use up to six lines, each of which typically has from about four to eight lures per wire, attached by monofilament leaders (spreads) at intervals of about 3 fathoms (18 feet). Cannon-ball shaped weights up to about 60 pounds are used to place the gear at whatever depth the fisherman desires, using hydraulic gurdies (a type of mechanical reel). Oftentimes floats are used on the outside lines, which spread the lines and prevent tangles (Goblirsch & Theberge 2003d).

Commercial salmon fishing gear in California must feature barbless hooks. Fishermen target salmon anywhere from just below the surface to a depth of about 80 fathoms, generally trolling between one and four knots. For lures, they utilize plugs, flashers with hootchies (plastic or rubber "squid"), spoons and baits such as herring and anchovy.

The salmon gurdies are used to bring the leaders to the boat. The fishermen then play and land the salmon, on its six to eighteen-foot monofilament leader, by hand. California's salmon trollers stun their catch in the water. The fish is then gaffed onto the boat, bled, cleaned and washed, typically within a brief time. Pillar Point's salmon trollers typically fish within about 50 miles of shore, and store their catch either in refrigerated seawater tanks or slush-iced in the hold.



Figure 101: Salmon "hootchie" (lure). Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

Variables such as speed, depth, lure type and fishing area all have an impact on the fish caught, and professional trollers target particular runs of Chinook salmon, utilizing time and area restrictions to help protect wild salmon stocks. California's salmon season historically is from May 1 through mid-October. However, every year this season is subject to changes and restrictions, dependent on predicted salmon returns.

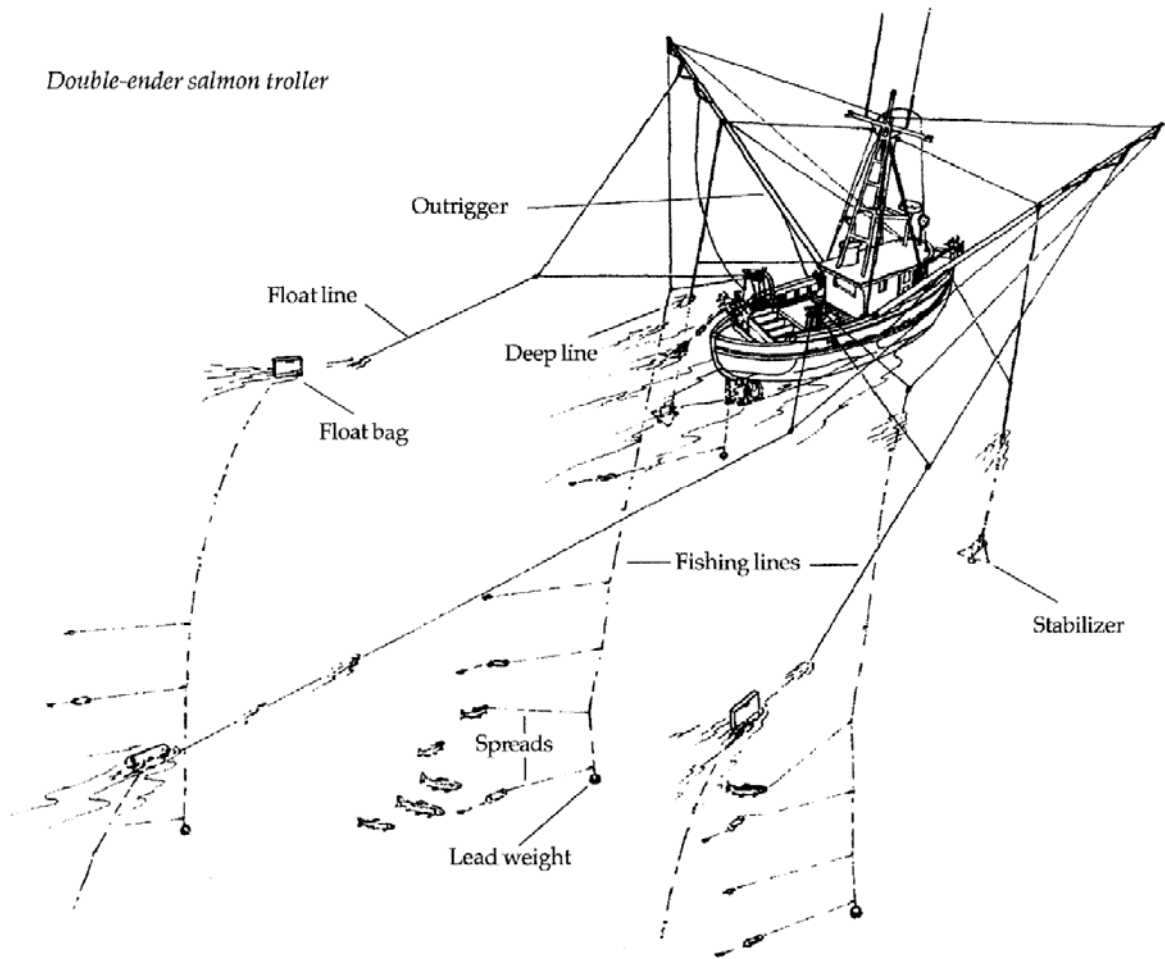


Figure 102: Salmon troller. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

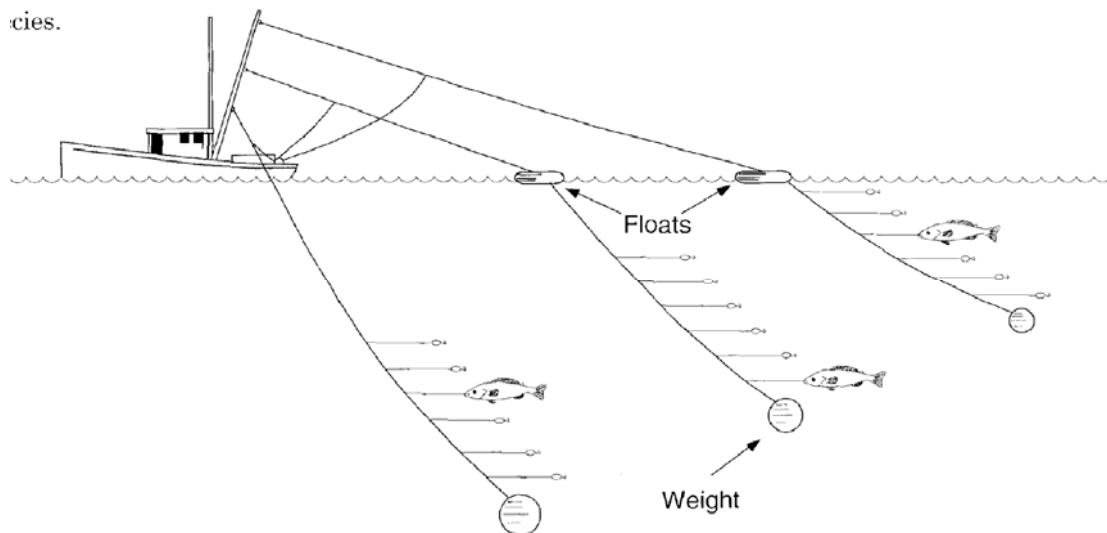


Figure 103: Typical salmon troll fishing gear configuration (Starr, Cope & Kerr 2001:17).

Troll Fishery - Albacore

Pillar Point's commercial fishermen fish for albacore tuna by towing lures behind their boats at speeds of about five to seven knots. Albacore are fast-moving, and this can be a "fast and furious" fishery, with fishermen sometimes putting fish onboard as fast as they can pull them (Goblirsch & Theberge 2003d).

When trolling for albacore, fishermen generally tow 10 or more lines of varied length on the surface of the water, attached to their outriggers and the stern of the vessel. At the end of each line, a jig (lure) is attached. The jig is generally made of a plastic skirt or feathers attached to a metal head (the only weight on the line). Hooks are barbless. Each line has a cord attached ("tag line"), which the fisherman uses to pull the fishing line near the boat. Typically, a hydraulic puller is then used to bring the fish close to the boat, where the fisherman takes over. Each fish is hand-landed, unhooked, bled and prepared for freezing or icing (Goblirsch & Theberge 2003d)



Figure 104: Tuna "jig" (lure). Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

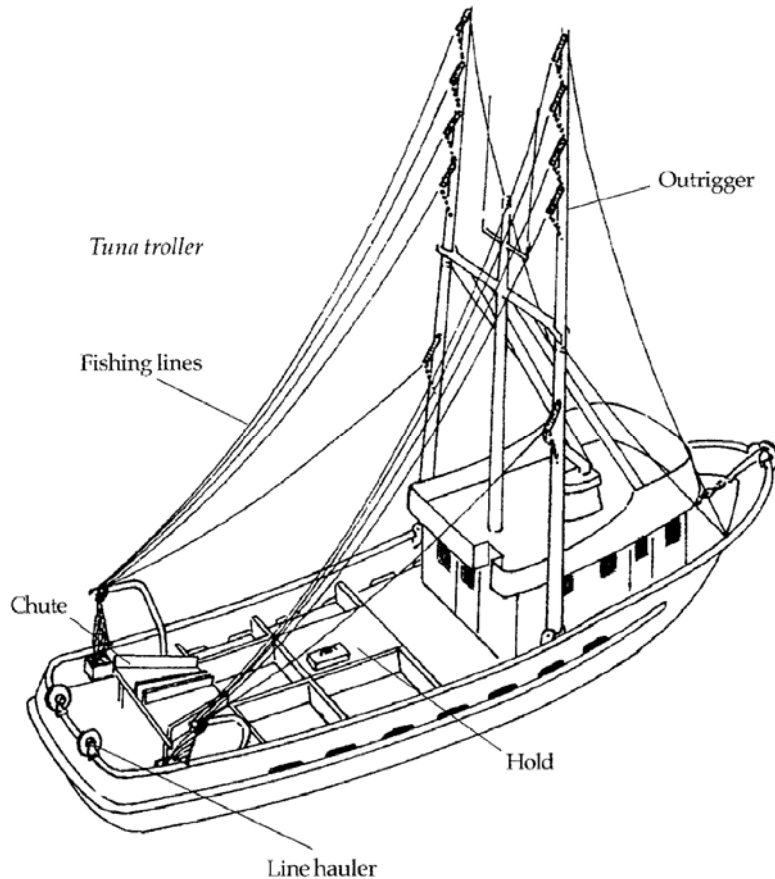


Figure 105: Commercial fishing vessel rigged for trolling albacore. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

At Pillar Point Harbor, the commercial fishermen have developed a local market for direct, off-the-boat sales of fresh albacore that has been bled and then gutted. Some fishermen who freeze their catch at sea also bleed the fish and target this local market. At the present time, there is no albacore cannery market at Pillar Point, however, the major canneries do not require that fish be bled (Goblirsch & Theberge 2003d).

According to Sea Grant, “albacore harvested by [coastal] fishermen are younger fish (three to five years old) between 10 and 30 pounds and are higher in omega—3 fish oils than the large, lean, older albacore caught by foreign longline fishermen in the central Pacific. Because these fish are young, mercury accumulation is not a concern. As a result they taste better and are more healthful (Goblirsch & Theberge 2003d).

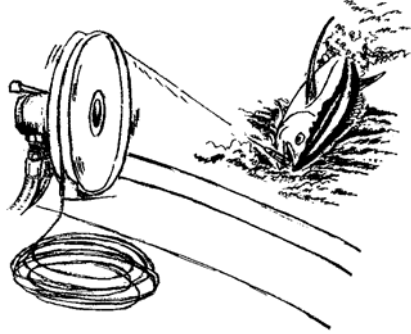


Figure 106: Landing an Albacore with a Hydraulic Tuna Puller.
Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

Albacore fishermen have little, if any, bycatch. Guides to eating seafood produced by the Monterey Bay Aquarium and Audubon both cite albacore trolling as a “clean fishery” with little environmental impact (Goblirsch & Theberge 2003d).

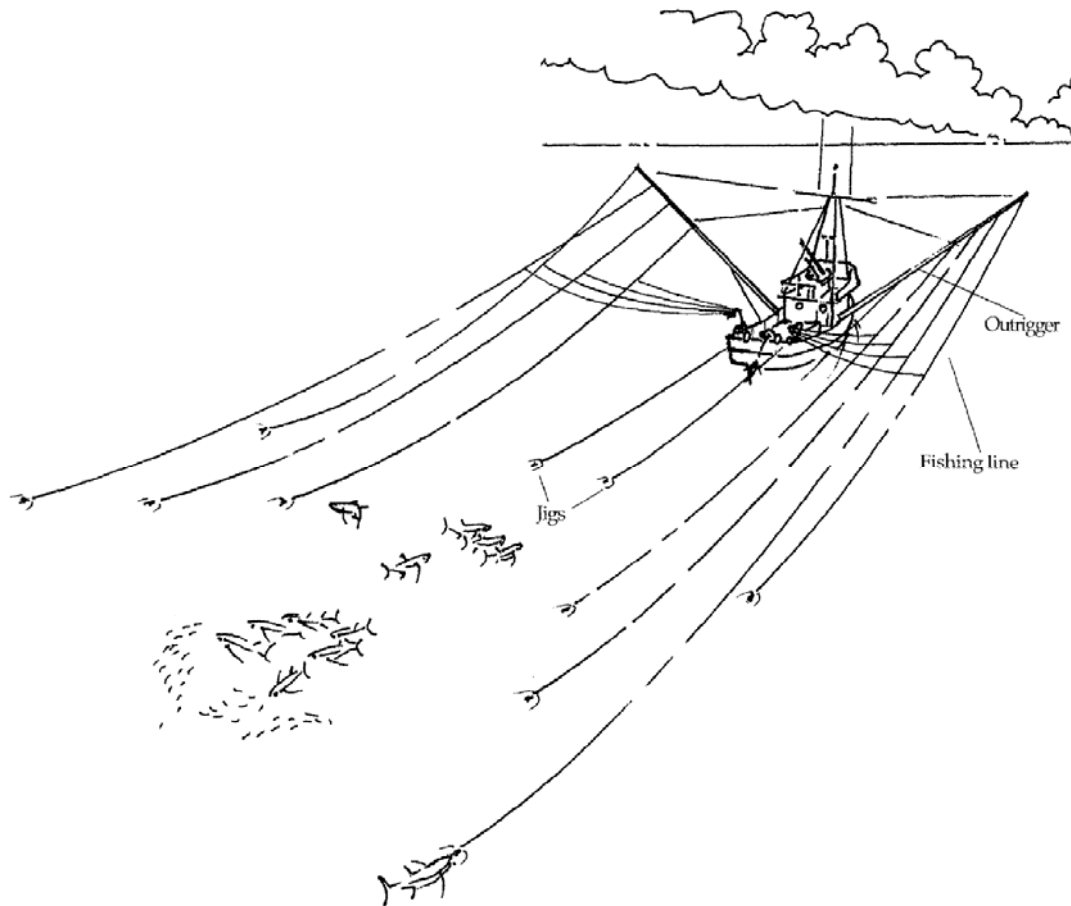


Figure 107: Albacore troll vessel. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003d).

Purse Seine Fishery

Purse seines, the most common encircling nets in use in California, are used by a few Pillar Point fishermen to fish for schooling species such as anchovy, squid and sardines (Starr, Cope & Kerr 2001:18; California Seafood Council 1997; Goblirsch & Theberge 2003c).

Purse seines are movable nets which are placed around the fish. A float line is located at the top and a weighted line at the bottom, which together work to hold the net in position. One end of the net is attached to a small skiff, which holds the net in place while the larger vessel encircles the school of fish. A cable along the bottom of the net is then pulled, “pursing” the net (closing off the seine bottom). A successful set may result in 35 or 40 tons of fish, and with luck one or two sets will fill the hold. Generally, the fish are then pumped or brailed (dipped) into a fishhold of refrigerated sea water (Goblirsch & Theberge 2003c; Starr, Cope & Kerr 2001:18).

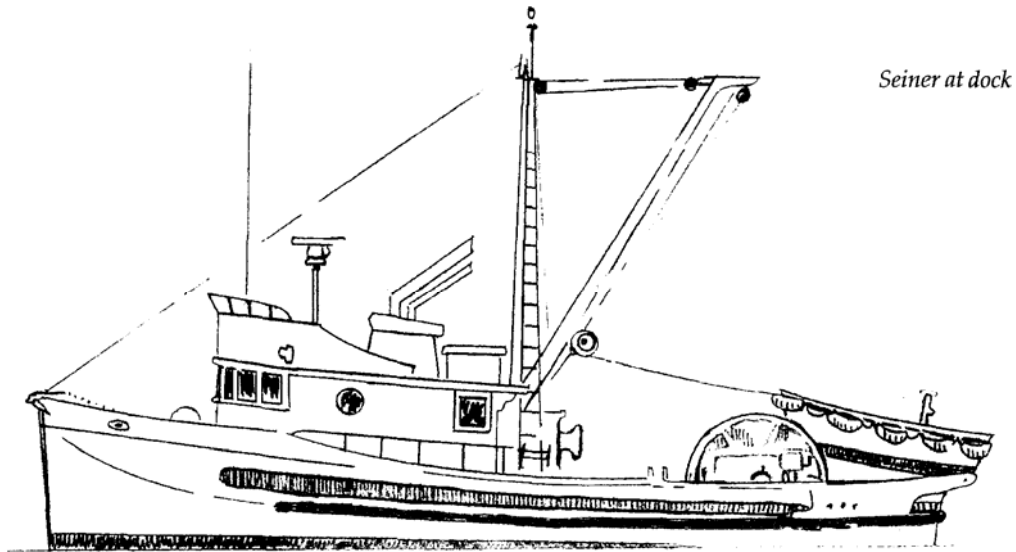


Figure 108: Seiner at dock. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003c).

In order to accommodate the large nets, vessels typically range from about 60 to 80 feet in length. At the dock, seine boats are distinguishable by the small skiff pulled up on their stern, as well as the seine net, typically either stored on a reel or stacked off to the side on deck (Goblirsch & Theberge 2003c).

Pacific Sardines: In January 15, 1999, the State of California declared “Pacific Sardine Resource Now Officially Recovered.” Today, the sardine population is estimated at over a million tons. Sardines again occupy their entire historic range, from Mexico to Canada, and it is considered a true success story for both the sardines and California’s fishery managers (California Fish & Game Department 2006b). A closely-monitored purse seine fishery for Pacific sardines has been reestablished in recent years, due in large part to the increasing sardine abundance (Pacific Fishery Management Council 1998:A-12). Annually, fishery managers estimate the ocean abundance of sardines, taking care to protect the resource.

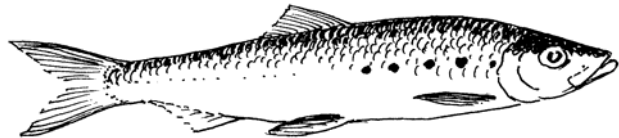
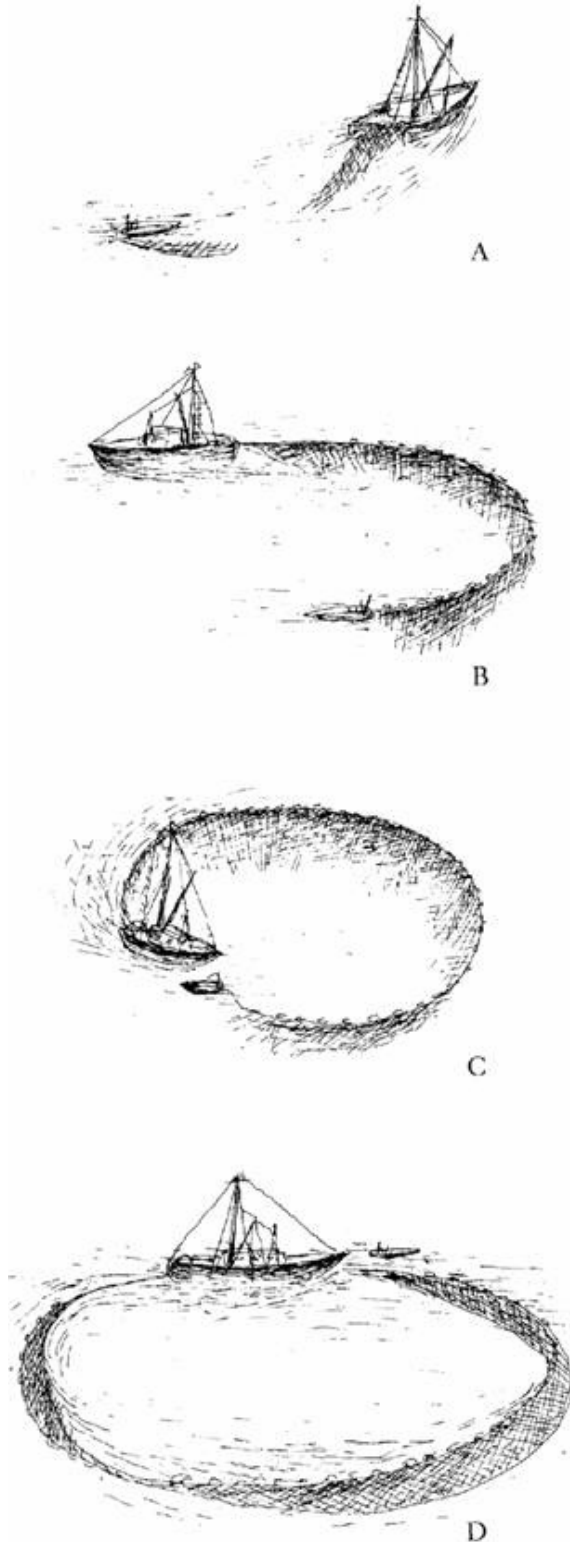


Figure 109: Pacific Sardine. Drawing by Herb Gorblich (Goblirsch & Theberge 2003c).



Catcher boat and skiff system. (John Douglas Moran)

According to Sea Grant, “The sardine fishery collapsed in the 1950s and only recently has recovered. It was originally thought to have collapsed because of overfishing, but now most fishery biologists believe sardine populations are cyclic and their disappearance was mostly due to changes in ocean conditions. Core samples pulled from the Santa Barbara basin and examined for sardine scales show that a systematic rise and fall in the number of sardine scales occurs about every 60 years. A drop in ocean temperatures seems to bring about the decline. In cooler ocean conditions, sardine numbers decline and anchovy numbers increase. Over the past 1,850 years, there have been 12 major periods of abundance” (Goblirsch & Theberge 2003c).

Today sardines are harvested and used primarily for human consumption (canned or fresh), pet food, export, and (in small quantities) for bait. The bulk of the exported product is used as feed in aquaculture facilities, typically trading multiple pounds of wild protein for a single pound of product. Virtually no reduction of sardines takes place in California today, other than what is considered waste from processing. Annual sardine landings have increased from a low in the 1970s of less than 100 tons to, in 1999, 62,600 tons. Based on biomass estimates, harvest guidelines have been increasing, and in 2000 there was a 65 percent increase in quota (Leet, et al. 2001:299-300).

Figure 110: Purse seine vessel using skiff to hold one end of net in place while they encircle the school of fish with the larger seine vessel. Drawing by John Douglas Moran (Meltzer 1980:65).

Market Squid: Pillar Point's purse seine fishermen also fish for California market squid, typically from May into the fall. Squid fishing is typically done at night, and the fishermen use bright lights to attract the squid schools. The school is then encircled in the same manner as described for fishing sardines (California Seafood Council). At times a second vessel, with high-intensity lights (a "lightboat"), assists in attracting the squid to the surface, receiving a percentage of the value of the catch in return (Starr, Cope & Kerr 2001:18).

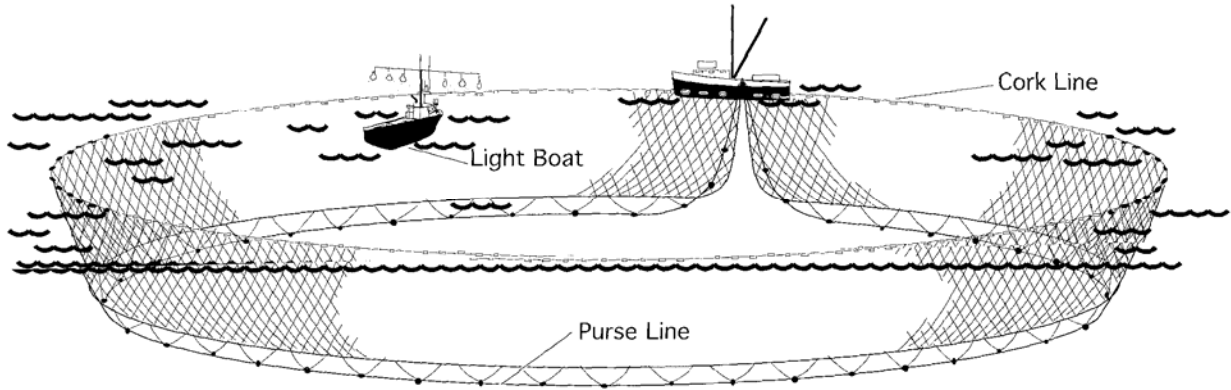
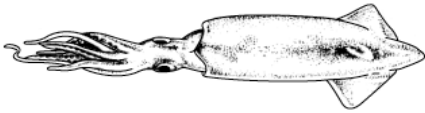


Figure 111: Purse Seine Vessel working with Squid Light Boat (Starr, et al. 1997:12).



Like most commercial fisheries, today California's squid fishery is highly regulated, and participants must hold a state-issued limited entry permit.

**Figure 112: California market squid.
Drawing: California Seafood Council.**

Trawl Fishery

In the 1860s, West Coast trawl fishermen towed Italian-style nets known as “paranzella” between pairs of lateen-style sail boats. Sailing in tandem, the two vessels would work to keep the net open and on the bottom by maintaining the proper distance from one another. (Goode 1887b:608; Scofield 1948:22; CA Fish & Game Department 1949:64)

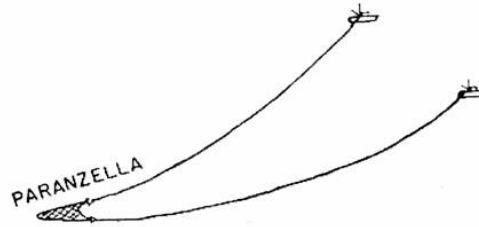


Figure 113: Paranzella-style trawl net. (Scofield 1948:17)

Today trawl vessels operating out of Pillar Point Harbor drag a bottom net (an “Otter trawl”) through the water to harvest fish. Pillar Point is home to several small trawl vessels (“druggers”), ranging in size from about 45 to 65 feet, each employing two to four people (Starr, Cope & Kerr 2001:16).

Trawl nets are wide at the opening, but taper into a funnel-shape, and when used, fish accumulate in what is known as the “cod end.” A large metal “door” is attached to each side of the net, which serve to hold the net open in the water. Steel cables, attached to winches on either side of the vessel, are used to raise and lower the net and to maintain the proper depth for fishing. As the net skips along the bottom, fish are herded into the opening by the doors and other gear (Goblirsch & Theberge 2003f; Starr, Cope & Kerr 2001:16). Most trawlers today have a ramp on the stern for ease in returning full nets to the boat (Goblirsch & Theberge 2003f).

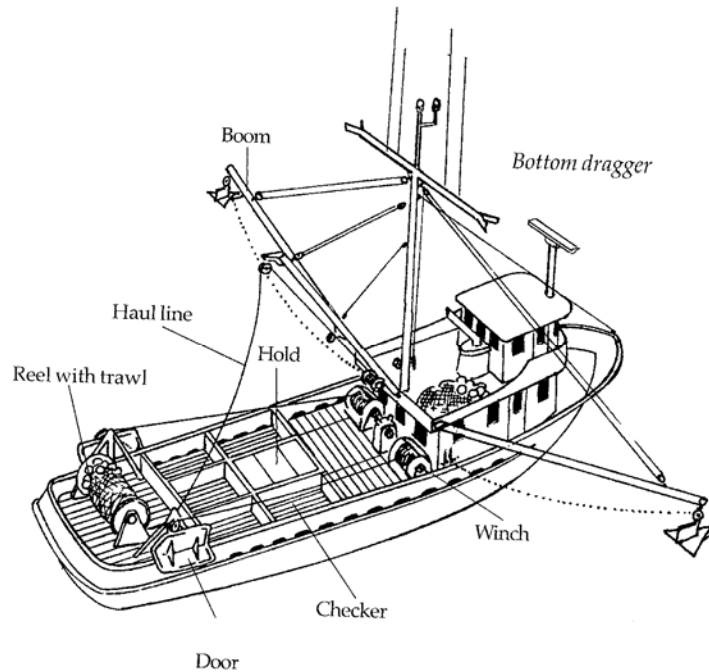


Figure 114: Commercial fishing vessel rigged for bottom trawling. Drawing by Herb Goblirsch (Goblirsch & Theberge 2003f).

Bottom trawlers harvest fish such as rockfish (“rockcod”), sablefish (black cod), California halibut and sole (Goblirsch & Theberge 2003f; Clark 1930:8).

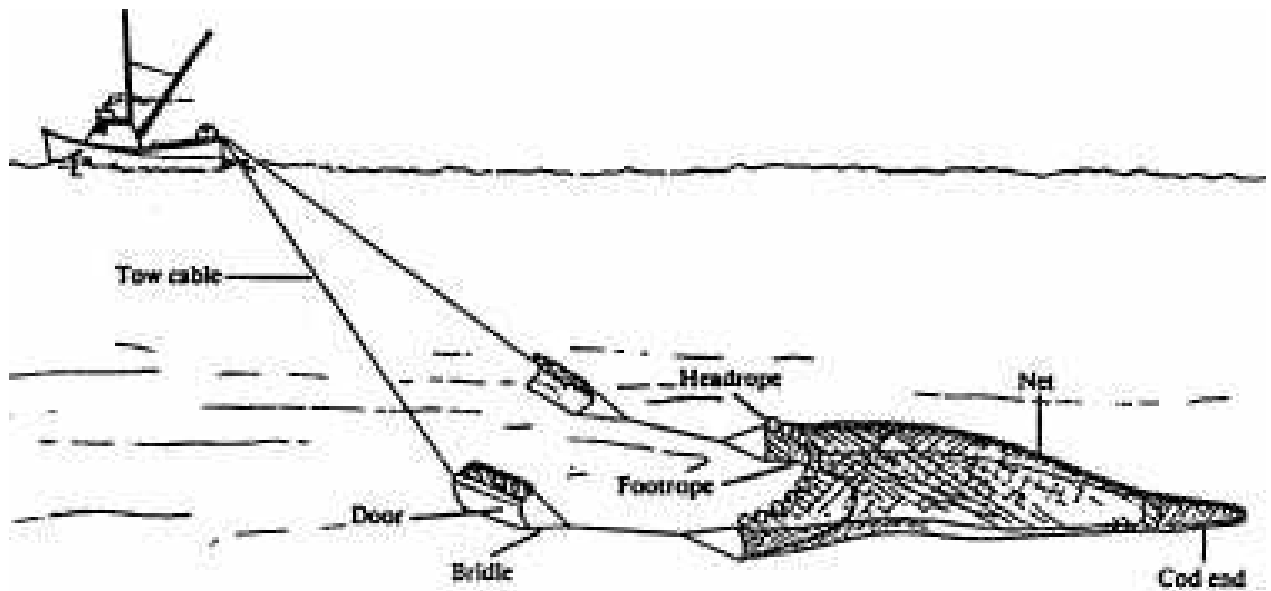


Figure 115. Bottom trawler in operation (Pacific Marine Conservation Council 1997).

When trawl vessels are not fishing, the nets are stored on reels on the deck and the doors are generally stored near the stern along the rails (Goblirsch & Theberge 2003f).

In California, trawling has been prohibited within three miles of shore since 1915 (Scofield 1948:56). Today, restrictions are also in place which confine most trawling to sand or mud bottoms (Goblirsch & Theberge 2003f).

Gill Net Fishery

Some commercial fishermen operating out of Pillar Point utilize gill nets to harvest various species, although their use has steadily declined since the 1980s due to increased restrictions (Starr, Cope & Kerr 2001:19). A gillnet is a wall of webbing, generally monofilament, with a float line at the top and a weighted line at the bottom. When in use, fish become entangled in the web by their gills. Rockfish gillnets were traditionally fished from small vessels, ranging from about 20 feet to 45 feet in length. The size of the mesh depends on regulations and the desired species. Netting was stored on the deck on large reels (Starr, Cope & Kerr 2001:19).

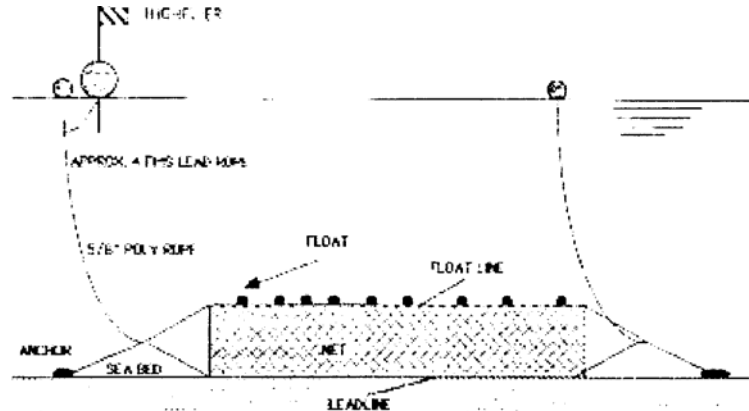


Figure 116: Bottom Set Gillnet. Drawing courtesy Washington Department of Fish & Wildlife (Recht 2003:52-11).

Drift gillnets, set near the top in deeper water, are utilized today by larger vessels to harvest swordfish, another highly regulated commercial fishery (Starr, Cope & Kerr 2001:19).

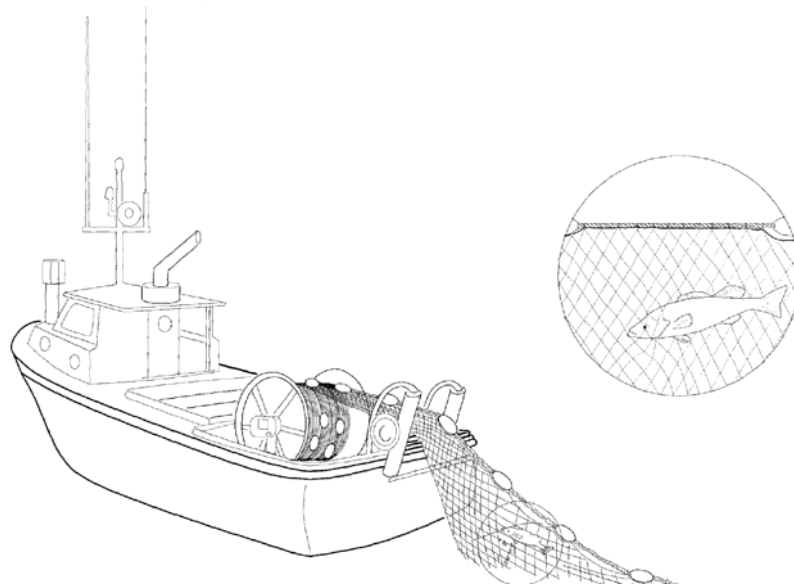


Figure 117: Example of smaller gill net vessel fishing with stern roller (Starr, et al 1996:13).

Dive Fisheries -- Abalone & Sea Urchins



(Microsoft Word 2003 clip art)

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EXPERTS

Tom Stickel, Commercial Fisherman

APPENDIX E: Common Names of Species Caught in the Monterey Bay National Marine Sanctuary

According to reported recreational and commercial landings, there were over 200 species of fishes and invertebrates landed in the Monterey Bay National Marine Sanctuary in the period 1981 through 2000² (Starr, Cope & Kerr 2001:133-137). This table of the common names of those species is provided in order to give readers an idea of the resources available off the San Mateo County coast.

Table 118: Common names of species caught in commercial and recreational fisheries within the Monterey Bay National Marine Sanctuary (Starr, Cope & Kerr 2001:133-137).			
Invertebrates:	Abalone, red	Abalone, black	California spiny lobster
Clam, California jackknife	Clam, common littleneck	Clam, common Washington	Clam, gaper
Clam, northern quahog	Clam, northern razor	Clam, Pismo	Clam, purple
Clam, rosy razor	Clam, softshell	Crab, box	Crab, Dungeness
Crab, rock	Crab, shore	Crab, shore	Crab, spider
Limpet, owl	Mussel, California	Mussel, bay	Octopus
Prawn, ridgeback	Prawn, spot	Scallop, rock	Sea cucumber
Sea snail	Sea star	Shrimp, bay	Shrimp, Pacific ocean (Pink)
Squid, market	Urchin, purple sea	Urchin, red sea	Whelk, Kellet's
Fishes:	Albacore	Anchovy, northern	Barracuda, California
Bass, kelp	Bass, striped	Blacksmith	Blenny, bay
Bonito, Pacific	Butterfish, Pacific	Cabazon	Cabrilla, spotted

² May include species which were landed but not caught in local waters (Starr, Cope & Kerr 2001:133-137).

Table 118: Common names of species caught in commercial and recreational fisheries within the Monterey Bay National Marine Sanctuary (Starr, Cope & Kerr 2001:133-137).

Cod, Pacific	Croaker, white	Doiphinfish	Eel, California moray
Flounder, arrowtooth	Flounder, starry	Fringehead, onespot	Fringehead, sarcastic
Goby, bay	Goby, yellowfm	Goby, zebra	Greenling, kelp
Greenling, painted	Greenling, rock	Grenadier, Pacific	Grouper, broomtail
Grouper, gulf	Guitarfish, shovelnose	Hagfish, Pacific	Hagfish, black
Hake, Pacific	Halfmoon	Halibut, California	Halibut, Pacific
Herring Pacific	Irish lord, brown	Irish lord, red	Jacksmelt
Kelpfish, giant	Kelpfish, striped	Lancetfish, longnose	Lingcod
Lizardfish, California	Louvar	Mackerel, Pacific	Mackerel, jack
Midshipman, plainfin	Opaleye	Prickleback, monkeyface	Prickleback, rock
Queenfish	Ratfish, spotted	Ray, bat	Ray, Pacific electric
Rockfish, aurora	Rockfish, bank	Rockfish, black	Rockfish, black-and-yellow
Rockfish, blackgill	Rockfish, blue	Rockfish, bocaccio	Rockfish, bronzespotted
Rockfish, brown	Rockfish, calico	Rockfish, canary	Rockfish, chameleon
Rockfish, chilipepper	Rockfish, China	Rockfish, copper (whitebelly)	Rockfish, cowcod
Rockfish, darkblotched	Rockfish, dusky	Rockfish, flag	Rockfish, freckled
Rockfish, gopher	Rockfish, grass	Rockfish, greenblotched	Rockfish, greenspotted
Rockfish, greenstriped	Rockfish, halfbanded	Rockfish, honeycomb	Rockfish, kelp
Rockfish, Mexican	Rockfish, olive	Rockfish, Pacific Ocean Perch	Rockfish, pink
Rockfish, quillback	Rockfish, rebanded	Rockfish, redstripe	Rockfish, rosethorn
Rockfish, rosy	Rockfish, rougheyeye	Rockfish, sharpchin	Rockfish, shortbelly
Rockfish, silvergray	Rockfish, speckled	Rockfish, splitnose	Rockfish, squarespot
Rockfish, starry	Rockfish, stripetail	Rockfish, swordspine	Rockfish, tiger
Rockfish, treefish	Rockfish, vermilion	Rockfish, widow	Rockfish, yelloweye
Rockfish, yellowtail	Sablefish	Salmon, chinook	Salmon, chum
Salmon, coho	Sand bass, barred	Sand lance, Pacific	Sanddab, longfin
Sanddab, Pacific	Sanddab, speckled	Sandfish, Pacific	Sardine, Pacific
Saury, Pacific	Sculpin, Pacific staghorn	Sculpin, sharpnose	Seabass, white
Senorita	Shad, American	Shark, bigeye thresher	Shark, blue
Shark, common thresher	Shark, leopard	Shark, Pacific angel	Shark, seven gill
Shark, shortfin mako	Shark, six gill	Shark, soupfin	Shark, spiny dogfish
Sheephead, California	Sierra, gulf	Skate, big	Skate, California
Skate, longnose	Smelt, night	Smelt, surf	Smelt, whitebait
Smoothhound, brown	Smoothhound, gray	Sole, bigmouth	Sole, butter
Sole, Dover	Sole, English	Sole, fantail	Sole, petrale
Sole, rex	Sole, rock	Sole, sand	Stingray, diamond
Stingray, round	Sturgeon, green	Sturgeon, white	Sunfish, ocean
Surfperch, barred	Surfperch, black	Surfperch, calico	Surfperch, dwarf
Surfperch, kelp	Surfperch, pile	Surfperch, rainbow	Surfperch, redtail
Surfperch, rubberlip	Surfperch, sharpnose	Surfperch, shiner	Surfperch, silver
Surfperch, spotfin	Surfperch, striped	Surfperch, walleye	Surfperch, white
Thornyhead, longspine	Thornyhead, shortspine	Tomcod, Pacific	Topsmelt
Trout, steelhead	Tuna, bigeye	Tuna, bluefin	Tuna, skipjack
Tuna, yellowfin	Turbot, C-O	Turbot, Curlfin	Turbot, Diamond
Whitefish, ocean	Wolf eel	Yellowtail	Zebra perch